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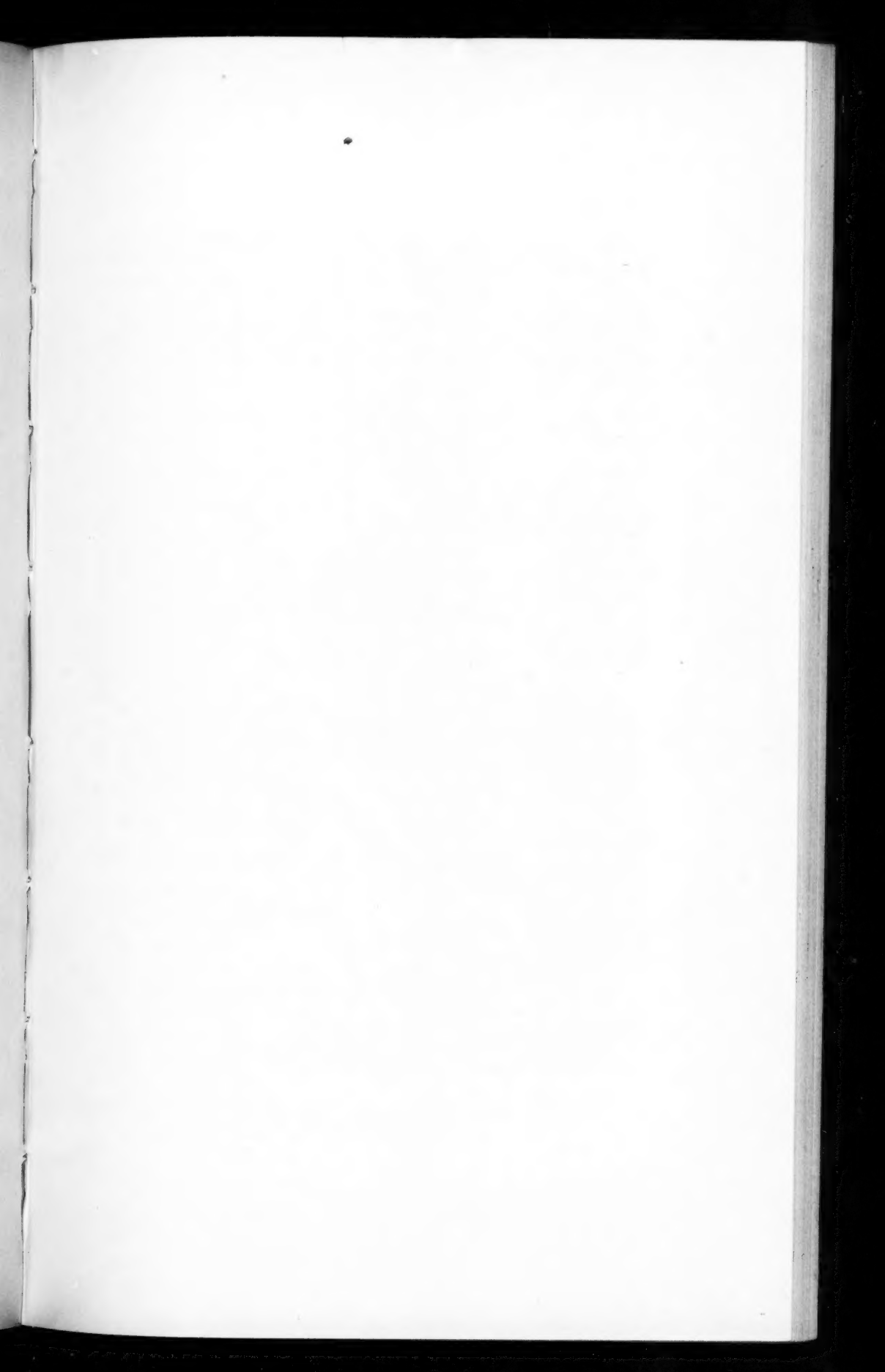
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NESTLING SAW-WHET OWL (*Cryptoglaux acadica*)
CHAMBLY, QUEBEC. JULY 16, 1927.

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No. 2.

NESTING OF THE SAW-WHET OWL (*CRYPTOGLAUX ACADICA ACADICA*) IN THE MONTREAL DISTRICT.

BY L. MC I. TERRILL.

(*Plates III-IV.*)

No doubt most of us who have developed an interest in nature are accustomed, for one reason or another, to visit certain favoured localities more frequently than others, with the result that we become more or less thoroughly familiar with the local flora and fauna and are enabled to note the ecological changes from year to year. In my own case I have in mind the Chambly district, bordering the Richelieu River, about twenty miles distant from Montreal, which I have explored frequently at all seasons during the past twenty years. It was here, on May 22, 1927, that I found my first nest of the Saw-whet Owl. Although I have occasionally recorded this Owl in the vicinity of Montreal during the summer months, I had previously noted it at Chambly only in the fall and winter, when it is not uncommon throughout this part of Quebec Province.

Other raptorial birds are fairly well distributed in the wooded sections of Chambly, where, within a radius of about five miles, I believe I had already found the nesting places of most of the Hawks and Owls breeding there. These include the following:—five pairs of the Marsh Hawk, nine of the Sharp-shinned Hawk, three each of the Red-shouldered, Broad-winged and Sparrow Hawks, five pairs of the Long-eared Owl, two of the Great Horned and one of the Screech Owl. I do not mean to intimate that the nests of all of these are found in successive years, but that this list comprises

the approximate population of nesting raptorial birds within the area. There is some uncertainty regarding the status of a Cooper's Hawk and a Barred Owl seen on a few occasions.

It may also be of interest to note that although the Accipiters can generally be found by intensive search, the Buteos are far less dependable in recent years and the thought arises whether the wholesale destruction of Hawks at congested points during migration is a contributory factor. It is natural to assume that the Buteos would suffer more than the smaller and swifter Accipiters, at least when the destruction is carried on under the guise of "vermin" control by persons ignorant of the meaning of the term. In any event the Red-shouldered Hawk is notably scarcer in many of its haunts.

The nesting locality of the Saw-whet Owl was by the bank of a stream draining an upland pine wood and the nest was barely twenty feet from the ground in an old cavity in the decayed top of a basswood stub, in the deep shade of surrounding saplings. It is probable that a Flicker was responsible for the excavation, but the entrance had become enlarged and ragged through decay and bore little semblance to the neatly chiselled nesting place of that bird.

The Owl very considerably appeared at the entrance as I approached and when I reached the cavity it merely flew to a sapling six feet distant and stared at me without other demonstration while I examined the single fresh egg, resting on chips of rotten wood, ten inches below the opening. Almost as soon as I had descended, the Saw-whet shook its feathers, flew back and disappeared into the cavity, reappearing in a moment to watch my movements. This was the usual procedure during succeeding visits, except that it was sometimes necessary to rap the stub lightly in order to bring the bird to its doorstep. The only note of protest heard in the daytime was an occasional snapping of the mandibles. This was more noticeable after the young were hatched.

On May 28 there were four eggs, one of which I took. This was perfectly fresh. On June 3 the nest contained five eggs, making six in all. Although the nest was not visited in the interim it is reasonable to assume that deposition had been completed by June 1 and that an egg was laid on alternate days. Unfortunately I

neglected to mark the eggs and, as subsequent events will indicate, was unable to determine the exact period of incubation. It will be apparent, however, that the period required for the last egg to hatch was at least 26 days and probably longer—a lengthy time indeed for so small an Owl.

None of the eggs had hatched on June 17, but on my next visit, the 24th, I found two young. The first-born, which I estimated to be from four to six days of age, peeped very much in the manner of baby Long-eared Owls. It was scantily covered with whitish down with perhaps the faintest tinge of buffy, and the eyelids were tightly closed. The second nestling was exceedingly tiny and helpless and apparently not more than a day from the egg. The whitish down on this owlet was very inconspicuous.

On July 1, accompanied by my friends, Napier Smith and Henry Mousley, we found three young and an addled egg, the fifth egg having unaccountably disappeared. The latest addition to the family was not more than a day or two old, and, as usual, quite helpless, while the other nestlings had reached what I style the 'motley' stage. In the oldest owlet the feathers of the succeeding plumage were commencing to replace the down and more or less well defined patches of brown were in evidence, particularly about the alar tracts, the back and the head. There was nothing notable about the facial disk, except that the white 'spectacles' of a later stage were faintly delineated. Owlet number two showed indistinct traces of brown on top of the head and on the back, but the development of the wing coverts was more marked. To the best of my knowledge their ages at this date were, respectively, 11 to 13 days, 8 days and 1 to 2 days.

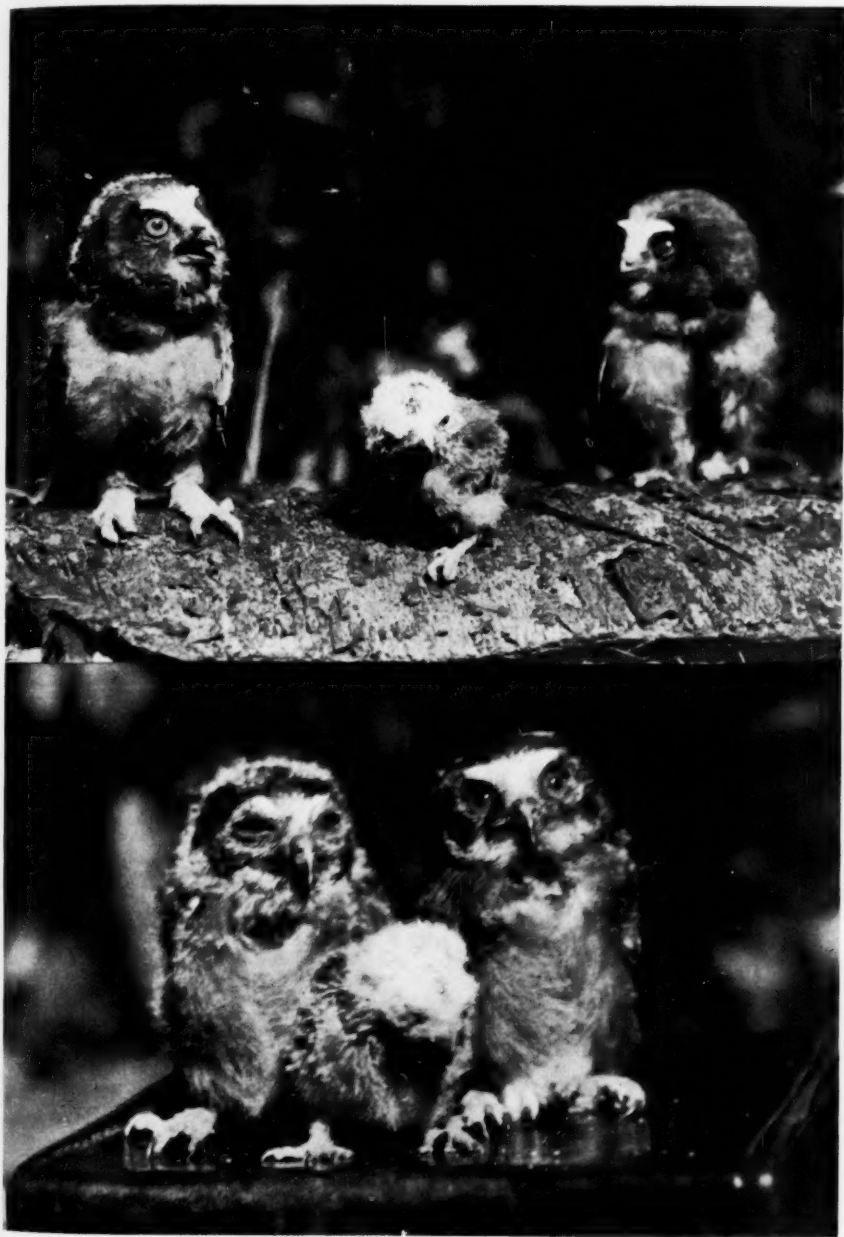
On July 9 the crown and upper parts of the oldest bird (19 to 21 days) were a chocolate brown color with a very little down on top of the head. Beneath, the coloring was a brighter ochre brown with exception, principally, of the broken white jugular collar and a triangular white patch between the bill and the eyes. The brown coloring was everywhere noticeably darker than in the adult. I noted also that the bristle-tipped feathers at the base of the bill were well developed. Nestling number two had more down and the white area encircling the eyes gave it a pronounced bespectacled appearance. Otherwise it did not differ greatly from

the older bird, which had less composure, crouching and snapping its bill and often backing away into the undergrowth. The youngest owlet, presumably not more than ten days old, was still almost entirely clothed in whitish down, with slight indications of the secondary plumage. This one peeped instead of snapping its bill, which it sometimes used as a hook, and posed with bent head as if ashamed of its unopened eyes.

The parent was absent from the nest for the first time on July 16, the only occasion on which it failed to appear at the entrance except once when I removed the young to a sun-lit glade 100 yards distant, where I kept them under observation for upwards of an hour. On my return I found it crouching disconsolately in the deserted nursery, thinking no doubt that there was no further need for defensive attitude.

The first-born, now between 26 and 28 days old and quite as large as its parent, frequently indulged in flights of from 12 to 15 feet from the observation log, but, although the flight feathers were almost fully developed, it was unable to rise from the ground. The upper parts were entirely chocolate brown, no down being perceptible. The principal white areas beneath were the jugular patches and, more prominent, the broad white disks, tapering from the base of the bill to a point above the eyes and suggesting in shape the horns of a goat. The forehead was finely streaked, much as in the adult plumage. This plumage is probably responsible for the so-called White-fronted Owl (*albifrons*) of early authors.

The second bird was somewhat similar but still had a little down on the head. This one posed submissively as in the past and made no attempt to fly, though it occasionally moved into the undergrowth to escape the heat. It was always possible to arrest this movement, however, by giving a mouse-like squeak, when it would turn and give me the benefit of a very wide-awake but somewhat nonplussed stare! On occasion the older birds assumed a rather threatening attitude towards each other, particularly when they found themselves vis-à-vis on the observation log. In both of these nestlings the iris was yellow. I should also mention that on the 9th the oldest owlet, at the age of 19 to 21 days, also had yellow eyes, while the eyes of the second bird at 16 days were not fully opened and their yellow coloring was not as clear.



UPPER—NESTLING SAW-WHET OWLS (*Cryptoglaux acadica*)

CHAMBLY, QUEBEC. JULY 16, 1927.

LEFT TO RIGHT, No. 2, No. 3, No. 1.

LOWER—SAME BIRDS, JULY 9, 1927.



The youngest bird was an anomaly. It had progressed very slowly. Although at least 16 days of age, it was still in the motley stage and posed with bent head, probably to shield from the light its half opened eyes, which were as dark and lustreless as ink-wells. In contrast to the other nestlings this bird was also very fidgety, a fact that was evident in my negatives. What a contrast, also, to young Hawks (I have in mind especially, Marsh and Sharp-shinned Hawks), which have well-developed coats of down and wide-opened eyes at birth, and soon exhibit much of the alertness of nestlings that are both precocial and nidifugous.

Returning to the nest at dusk we waited expectantly and at 7.45 p. m. heard the young Owls give a high-pitched, sibilant call with a slight rasp. This bore some resemblance to the sound produced by the filing of a saw and doubtless was their hunger call. In a few moments they called again, but still no sign of the parents. At 8 o'clock a Whippoorwill commenced to sing and almost at the same moment I heard the 'tsch-wett' of an adult Saw-whet from the other side of the stream. A minute later, with just enough light to distinguish it, one of the parents flew by, voicing its displeasure in the same manner in which the young begged for food, only more loudly and insistently. Back and forth it flew, almost brushing our faces at times, and hissing in a way that suggested little spurts of steam escaping from a small nozzle. There was however, a distinct rasping sound audible.

I had previously heard and traced to its source on several occasions the 'tsch-whett' call, or song, of the Saw-whet, mainly in the spring and early summer, but was never quite able to reconcile it with the sound of saw-filing. The fact that the young hiss, however, suggests that this is the basis for other calls and that the 'tsch-whett' note is the song modification. I am fully aware that my notes on this pair of birds are very incomplete and that the Saw-whet may have other calls with which I am unfamiliar. Unfortunately, conditions did not permit me to remain at the nest long after dusk and I probably missed many things of interest. I might add, for whatever significance it may have, that on occasion I have momentarily mistaken the hunger call of a 'downy' Cuckoo (if there is such a thing!) for the note of the Saw-whet; also that my parrot, a Mexican Yellow-poll, when in a dim light and a soliloquent mood, often gives a faint imitation of it by protruding the

lower mandible and drawing the tip against the upper. In humans I imagine that this would be tantamount to gritting the teeth. I do not know whether the Saw-whet produces its song in this manner, but it would be fitting if we concede that bird-song serves the two-fold purpose of love-song and challenge!

On the following day the young were still in the nest, but on the 23rd I found no sign of young or adults and, strangely, no pellets were observed, either on this occasion or during previous visits, although I searched the vicinity rather carefully. In fact the orderly habits of these little Owls were quite pronounced. At no time during the occupancy of the nest was any indication of the nature of their food observed, either in the nest or in the neighborhood. Evidently pellets cast by the young, egg shells and other debris were carried some distance away. Possibly they were dropped into the stream.

On August 7 however, there were three fresh pellets beneath the nest, one of them very small, and two older pellets under dense spruce trees within a radius of 75 yards. Again, on the 28th, three pellets were found, two of them beneath the nest. The last evidence of the Owls' presence in the vicinity was noted on September 7, when a single pellet was found near the nest.

Several of the pellets were submitted to the Royal Ontario Museum at Toronto and Dr. Dymond kindly furnished me with particulars of their contents, which included the remains of one bat, either *Myotis subulatus* or *lucifugus*, and eleven mice and shrews of the following species:—7 Masked Shrews (*Sorex cinereus*), 2 Short-tailed Shrews (*Blarina brevicauda*), 1 Jumping Mouse (*Zapus hudsonius*) and 1 Meadow Mouse (*Microtus pennsylvanicus*).

Owing to lumbering operations the stub occupied by the Saw-whets was cut down during the following winter and I have found no trace of them since that time. Nevertheless I do not feel as confident regarding their movements as in the case of other raptors in the district. My original opinion that they were newcomers, a theory enhanced by the late nesting date, has been considerably modified, and I am not at all certain that they have not returned to some portion of the general locality in succeeding years, principally because of my failure to see any of them except at the nest, or to find signs of a definite roosting place.

Montreal, Canada.

A JEFFERSON LETTER OF HISTORICAL AND
ORNITHOLOGICAL INTEREST.

BY J. GREENWAY, JR.

READERS of Alexander Wilson's 'American Ornithology' must often have wondered at the savage attack that George Ord, his good friend, made upon Thomas Jefferson in his preface to the ninth volume. If Ord was correct, why did the great president refuse the scientist permission to go with the Pike Expedition, or why, as Ord affirms, did Jefferson disregard utterly Wilson's request to go? The following letter throws a new light on the matter. It is believed that the letter has never before been published, and it is reproduced here through the courtesy of Harold Jefferson Coolidge, Esq., of Boston, in whose collection it lies.

Monticello, Oct. 27, '18.

Dear General:

I never saw till lately the IXth vol. of Wilson's Ornithology to this a life of the Author is prefixed by a Mr. Ord, in which he has indulged himself in great personal asperity against myself, these things in common I disregard, but he has attached his libel to a book which is to go into all countries & thro' all time. he almost makes his heroe die of chagrin at my refusing to associate him with Pike in his expedition to the Arkansa, an expedition on which he says he had particularly set his heart. now I wish the aid of your memory, as to the main fact on which the libel is bottomed, to wit that Wilson wished to be of that expedition with Pike particularly, and that I refused it. if my memory is right that was a military expedition, set on foot by General Wilkinson, on his arrival at St. Louis as Governor and Commanding officer, to reconnoitre the country and to know the position of his enemies, Spanish and Indian: that it was set on foot of his own authority, without our knolege or consultation; and that being unknown to us until it had departed, it was less likely to be known to Wilson, and to be a thing on which he could have set his heart. I have not among my papers a scrip of a pen on that subject; which is a proof I took no part in it's direction. had I directed it the instructions etc. would have

been in my hand writing, & copies in my possession. the truth is this, I believe, after the exploration of the Missisipi by Lewis & Clarke and the Washita by Dunbar, we sent Freeman up the Red River; and on his return we meant to have sent an exploring party up the Arkansa, and it was my intention that Wilson should have accompanied that party. but Freeman's journey being stopped by the Spanish authorities, we suspended the mission up the Arkansa to avoid collision with them. will you be so good as to lay your memory and your papers under contribution to set me right in all this?

Can you, without involving yourself in offence with Stewart, obtain thro' any channel, a frank and explicit declaration on what ground he detains my portrait? for what term? and whether there is to be an end of it? I think he has now had it 10, or 12 years. I wrote to him once respecting it, but he never noticed my letter.—I am on the recovery from a sickness of 6 or 7 weeks, but do not yet leave the house. our family all join in affectionate recollections and recommendations to Mrs. Dearborne and yourself, and none with more constant affection and respect than myself.

Thos. Jefferson.

In his preface to the ninth volume of the 'American Ornithology,' George Ord wrote as follows of the business: "About the commencement of this year (1806), information was disseminated through the medium of the public prints, that the president of the United States had it in contemplation to dispatch parties of ingenious men, for the purpose of exploring the waters of Louisiana. Mr. Wilson, aroused at the intelligence, now conceived that a favorable opportunity was afforded him of gratifying a desire, which he had long indulged, of visiting those regions, which he was well convinced were rich in the various objects of science; and particularly where subjects, new and interesting, might be collected for his embryo work on the ornithology of our country. He expressed his wishes to Mr. Bartram, who approved them; and the latter cheerfully wrote a letter to his friend and correspondent, Mr. Jefferson, wherein Mr. Wilson's character and attainments were distinctly stated, recommending him as one highly qualified to be employed in that important national enterprise. This introductory, couched in the

most gentlemanly terms, covered an application from Mr. Wilson himself, which, as faithful biographer of our deceased friend, we think proper to insert entire:

"To His Excellency Thomas Jefferson, President of the United States.
"Sir,

"Having been engaged these several years, in collecting materials and furnishing drawings from nature, with the design of publishing a new Ornithology of the United States of America, so deficient in the works of Catesby, Edwards, and other Europeans, I have traversed the greater part of the northern and eastern districts; and have collected many birds undescribed by these naturalists. Upwards of one hundred drawings are completed; and two plates in folio already engraved. But as many beautiful tribes frequent the Ohio and the extensive country through which it passes, that probably never visited the Atlantic states; and as faithful representations of these can only be taken from living nature, or from birds newly killed; I had planned an expedition down that river, from Pittsburgh to the Mississippi and thence to Neworleans, and to continue my researches by land in return to Philadelphia. I had engaged as companion and assistant Mr. William Bartram of this place, whose knowledge of Botany, as well as Zoology, would have enabled me to make the best of the voyage, and to collect many new specimens in both those departments. Sketches of these were to have been taken on the spot; and the subjects put in a state of preservation to finish our drawings from, as time would permit. We intended to set out from Pittsburgh about the beginning of May; and expected to reach Neworleans in September.

"But my venerable friend, Mr. Bartram, taking into more serious consideration his advanced age, being near seventy, and the weakness of his eye-sight; and apprehensive of his inability to encounter the fatigues and deprivations unavoidable in so extensive a tour; having to my extreme regret, and the real loss of science, been induced to decline the journey; I had reluctantly abandoned the enterprise, and all hopes of accomplishing my purpose; till hearing that your Excellency had it in contemplation to send travellers this ensuing summer up the Red River, the Arkansaw and other tributary streams of the Mississippi; and believing that

Dear General

Monticello Oct. 27. 18.

I never saw till lately the 1st vol. of Wilson's Ornithology. to this a life of the Author is prefixed, by a Mr Ord. in which he has indulged himself in great personal asperity against myself. these things in common I disregard, but he has attached his libel to a book which is to go into all countries & thro' all time. he almost makes his horse die of chagrin at my refusing to associate him with Pike in his expedition to the Arkansas, an expedition on which he says he had particularly set his heart. now I wish the aid of your memory, as to the main fact on which the libel is bottomed, to wit. that Wilson wished to be of that expedition with Pike particularly, and that I refused it. if my memory is right, that was a military expedition, set on foot by General Wilkinson, on his arrival at St. Louis as Governor and Commanding Officer, to reconnoitre the country, and to know the positions of his enemies, Spanish and Indian: that it was set on foot of his own authority, without our knowledge or consultation; and that being unknown to us until it had departed, it was less likely to be known to Wilson, and so less likely on which he could have set his heart. I have not among my papers a scrap of a pen on the subject; which is a proof I took no part in it; I directed. had I directed it, the instructions &c would have been in my hand writing, & copies in my possession. the truth is this, I believe. after the exploration of the Mississippi by Lewis & Clark and of the Washita by Dunbar, we sent Freeman up the Red river; and on his return we meant to have sent an exploring party up the Arkansas, and it was my intention that Wilson should have accompanied that party. but Freeman's journey being stopped by the Spanish authorities, we suspended the mission up the Arkansas to avoid collision with them. will you be so good as to lay your memory and your papers under contribution to set me right in all this?

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Th Jefferson

my services might be of advantage to some of these parties, in promoting your Excellency's design; while the best opportunities would be afforded me of procuring subjects for the work which I have so much at heart. Under these impressions I beg leave to offer myself for any of these expeditions; and can be ready at a short notice to attend your Excellency's orders.

"Accustomed to the hardships of travelling; without a family; and an enthusiast in the pursuit of Natural History, I will devote my whole powers to merit your Excellency's approbation; and ardently wish for an opportunity of testifying the sincerity of my professions, and the deep veneration with which I have the honor to be,

"Sir,

"Your obedient servant,

"ALEX. WILSON."*

Kingsess, Feb. 6, 1806.

"Mr. Jefferson had in his port-folio decisive proofs of Mr. Wilson's talents as an ornithologist, the latter having some time before transmitted to his Excellency some elegant drawings of nondescript birds, accompanied with scientific descriptions. Yet with these evidences before him, backed with the recommendation of a discerning and experienced Naturalist, so little did Mr. Jefferson regard the pretensions of Genius, and the interests of Science; so unmindful was he of the duties of his exalted station, or the common civilities which obtain amongst people of breeding and refinement; that so far from accepting the services of our accomplished ornithologist, he did not even deign to reply to his respectful overture; and Wilson, mortified at the cold, contemptuous neglect, locked up his feelings in his breast, not even permitting a sigh to reach the ear of his most intimate friends. This treatment he did not expect from one, whom his ardent fancy had invested with every excellence; who had been the object of his encomiums, and the theme of his songs: "Omne ignotum pro magnifico."

Audubon, in the preface to his 'Delineations of American Scenery and Character' has his own explanation for Wilson's mis-

* Mr. Wilson was particularly anxious to accompany Pike, who commenced his journey from the cantonment on the Missouri, for the sources of the Arkansas, &c. on the 15th July, 1806. [Footnote by Ord.]

adventure. He speaks of a visit to Washington in 1831 to procure letters to authorities in the Carolinas and Florida where he had planned a trip. " * * * * I need not say that towards our President and the enlightened members of the civil, military, and naval departments, I felt the deepest gratitude for the facilities which they thus afforded me. All received me in the kindest manner, and accorded to me whatever I desired of their hands. How often did I think of the error committed by Wilson, when, instead of going to Washington, and presenting himself to President Jefferson, he forwarded his application through an uncertain medium. He, like myself, would doubtless have been received with favour, and obtained his desire. How often have I thought of the impression his piercing eye would have made on the discriminating and learned President, to whom in half the time necessary for reading a letter, he might have said six times as much as it contained. But, alas! Wilson, instead of presenting himself, sent a substitute, which, it seems, was not received by the President, and which, therefore, could not have answered the intended end. How pleasing was it to me to find in our Republic, young as she is, the promptitude to encourage science, occasionally met with in other countries. Methinks I am now bidding adieu to the excellent men who so kindly received me, and am still feeling the pressure of their hands indicative of a cordial wish for the success of my undertaking. * * * *"

[As a matter of fact there seems to be no evidence except Ord's statement that Wilson had set his heart on accompanying Pike or any special expedition nor that he felt any resentment against Jefferson. His only allusion to the matter that we find is in a letter of February 26 in which he attributes the failure to receive an answer to the fact that "a brush with the Spaniards was expected or that his letter and Bartram's had not been received. It is evident that Jefferson did receive the letters and possibly replied later to Bartram and that Ord was not informed of this fact.—Ed.]

*Museum Comp. Zool.,
Cambridge, Mass.*

NOTES ON THE FLOCKING OF SHORE BIRDS.

BY J. T. NICHOLS.

On Wheeling Flocks.

ONE of the most striking phenomena of flocking in shore birds, although one that is in no wise confined to this group, is the way in which flocks at times fly holding a close ranked formation, and the seemingly instantaneous precision with which they wheel in unison, as though each individual were motivated by a common impulse, rather than adjusting itself to the movements of its companions. This has seemed to me something of a mystery until a recent observation suggested a simple explanation perhaps bearing on the mechanics involved as well as on the purpose of the maneuver.

Two Dowitchers, young of the year, had been frequenting a narrow bit of favorable bay shore screened by sedge grass, for some days if not weeks. On the nearby ocean beach, reached through a short break in the dunes, Black-bellied Plover were usually to be found. This morning about a dozen Black-bellied Plover were alighted on the bay side with the Dowitchers, and sheltered by the grass, we detected a single Golden Plover among them, and had the pleasure of watching it at close range for as long as we desired. We then flushed the flock with the intention of picking out and comparing the Golden with the other Plover on the wing. Its flight was relatively fast, now it bounded off ahead of the flock, and as they wheeled finding itself in the rear, rose above them and dove down through to the front rank with a few swift wing strokes. Similarly the Dowitchers, naturally less fast than the Plover and straggling in the rear, were picked up as the flock wheeled and went off as an integral part of it.

When flocks of shore birds are making a protracted straightaway flight they usually move in comparatively open formation and are particularly apt to straggle when more than one species is involved, the bunching and wheeling is most frequent when a flock takes wing and may well serve to hold it together until the faster and slower individuals have adjusted speeds.

A simple explanation of mechanism would be that the faster finding themselves isolated in the van turn back and in so doing provide a single visual impulse on which the remainder of the flock may swerve almost instantaneously. With this thought in mind I have made a few observations on wheeling pigeons which do not entirely bear it out, it being often, perhaps usually the front rank of one of the sides of the flock which initiates the change in direction. In any event any change in direction is correlated with a change of leadership, and in a flock wheeling back and forth the fastest birds that shoot out ahead cover more and the slowest that straggle in the rear less distance, which if these be the same individuals in each case, amounts to the full diameter of the flock each time it wheels.

Association Preferences of Shore Birds.

When in sufficiently large numbers any shore bird species flocks by itself. Most species have, however, distinct association preferences at other times, which will be helpful in placing a bird the companions of which one knows.

The following occur only singly or in (usually small) flocks of their own kind. Woodcock, Wilson's Snipe, Solitary Sandpiper, Spotted Sandpiper, Upland Plover, Killdeer.

In my experience on Long Island, N. Y., the same might be said of the Hudsonian Curlew, but on the New Jersey Coast Mr. C. A. Urner has seen it in mixed flocks particularly of migrating Curlew and Dowitchers. There the Curlew is also more frequently seen in larger flocks.

The Stilt Sandpiper and Lesser Yellow-legs fly with the Dowitcher.

The Dowitcher and Lesser Yellow-legs fly with the Stilt Sandpiper.

The Semipalmated Sandpipers mix indiscriminately with the Least Sandpiper, and Single Dowitchers or Pectoral Sandpipers as well as an occasional White-rumped Sandpiper fly with considerable flocks of these smaller species.

Single White-rumped and Red-backed Sandpipers flock with the Sanderling on open shores.

The Black-bellied and Golden Plover (occasionally) and the Lesser Yellowlegs fly with the Greater Yellow-legs.

The Wilson's Phalarope, Dowitcher, Stilt Sandpiper, Pectoral Sandpiper (occasionally), Greater Yellow-legs and Turnstone fly with the Lesser Yellow-legs.

The Marbled Godwit and Willet are said to have flocked together in the days of their abundance.

The Golden Plover used to fly with the Eskimo Curlew and vice-versa.

The Knot, Willet, Greater Yellow-legs, Golden Plover (occasionally), Ringneck Plover and Turnstone fly with the Black-bellied Plover.

The Ringneck, when single, flies with almost any species, large or small, from the Greater Yellow-legs (or even an aloof Hudsonian Curlew) to the Least Sandpiper.

Correlation of Gregariousness and Habitat in Shore Birds.

The different species of shore-birds show every degree of gregariousness.

There is a distinct correlation between gregariousness and restricted feeding grounds. Thus the Spotted Sandpiper with great adaptability as to habitat (pond, stream, bay or ocean shore,—mud, sand or rock), at home almost anywhere, is one of the most solitary, the Greater Yellow-legs with more catholic tastes than the Lesser, is less gregarious than it.

The Lesser Yellow-legs as I know it in migration has very distinct preferences for new standing non-tidal rain or flood water, which concentrates the tarrying population about certain relatively few restricted coastal bits of marsh or pools. The species which habitually travel with it (Dowitcher, Stilt Sandpiper, etc.) share this preference. It is at least partially true that concentration on a restricted feeding ground makes a bird gregarious not only with its own kind but with others with which it is thus associated.

Chance unusual feeding associations which bring unlike species together may make close temporary associates of them. Such a case was two Dowitchers in a flock of Black-bellied Plover (mentioned elsewhere). Mr. Urner tells me of Lesser Yellow-legs availing themselves of adjacent feeding habitat and habits of the Upland Plover, and these two species flocking together.

The numbers of each species are spacially restricted some more,

some less, to preferred feeding and resting grounds and migration routes. When the territory is narrow and the numbers are high, a given species will occur in flocks, which species when less abundant would be much more scattering, though its inherent sociability would be partially compensated by mixing with unlike species.

It is partially true that shore-birds bunch up when feeding or tarrying, and scatter out when travelling. Thus the Hudsonian Curlew which seldom pauses on its passage along the shores of Long Island is usually seen passing singly or not more than 4 or 5 together, whereas farther south it occurs in flocks of considerable size.

However, the opposite tendency is observable under slightly different circumstances, either because a definite flight of some species congests its numbers along a given bit of migration route so that flocks are readily formed, or because an unmixed flock of the right size is a social unit not easily diverted. When a flight of Dowitchers is on they move in close bunched unmixed flocks, ten or 20 together being frequent, flying swiftly and silently, and though under ordinary circumstances a sociable, 'gentle' bird, it now will hardly respond to decoys.

Size of Flocks, etc.

A given species of shore birds seems to travel comfortably in flocks up to a certain size, and larger flocks though they will gather and wheel about a restricted bit of favorable feeding ground have little cohesion in moving from place to place. Such size of flock, varying by place and circumstance, would be for the Greater Yellowlegs perhaps a dozen birds, for the Lesser Yellowlegs or Sanderling 40 or 50, for the small (Least and Semipalmated) Sandpipers 100,—on Long Island in southward migration.

Even the most gregarious species also fly singly, but as Horst Wachs has recently (1927) noticed in migration observations on the coast of Mecklenburg, single shore birds are more noisy and fly more hurriedly and irregularly than flocks of the same species. Such behavior is probably correlated to their finding the companions they seem to be seeking. Two individuals, usually, but not always of the same species, frequently travel in company, and three together occur so often that it can hardly be mere coinci-

dence, but rather because this is a small unit with a definite majority to give it cohesion. The shore bird's flocking instincts being what they are, a single would be unlikely to leave (or not to follow) two birds.

There is an interesting recent German paper on the flocking of shore birds by Heyder (1929, *Mitteil. Ver. sächs. Ornithologen*, II, p. 187-194). He finds all species observed more or less gregarious, the Dunlin and Ringed Plover among the most, the Common Snipe and Common Sandpiper (which correspond to our Wilson's Snipe and Spotted Sandpiper) very little so. When the breeding season is concluded and during the ensuing migration period, the various species form flocks primarily of their own kind, but also flock with other species, the tendency of each to enter mixed flocks being more or less in direct ratio with its own flocking tendency. The species may further be divided into those with an active tendency to seek the company of other species, and those which merely tolerate the same, the smaller as a rule belonging to the former group, the larger to the latter, so that in general a species is attracted by birds larger than itself, disregards but tolerates smaller birds. There are also cases of especial affinity as between the Ringed Plover and certain Sandpipers, notably the Dunlin.

The writer can endorse the above generalizations from observation of American birds in migration, and would add that numbers 'draw' almost equally with size, most larger birds, if sufficiently in the minority, will be attracted by smaller birds if sufficiently numerous. Also species are continually 'decoying' to one another, more or less, which from lack of affinity are unlikely to travel in the same flock.

*American Mus. Nat. Hist.,
New York.*

THE CAVE BIRDS OF TRINIDAD.¹

BY M. A. CARRIKER, JR.

OUT of the vast multitude of feathered creatures inhabiting America, none have interested me more, or have at the same time seemed so repulsive, as the unique "Oil Birds" or "Guacharos" (*Steatornis caripensis*) of the island of Trinidad and adjacent mainland of Venezuela.

The low mountain range paralleling the north coast of Trinidad is composed to a great extent of soft limestone, so that with the great rainfall prevalent in this region, it rapidly weathers away when exposed. The mountains themselves, though low, are very broken and precipitous, and it frequently happens that surface water entering a fault or cleavage of the strata, in time dissolves and carries away great masses of rock and softer material, forming caverns of variable size, and it is in the larger of these caverns that the "Guacharos" take up their abode.

There is a very beautiful one, but difficult of access, on Monos Island, one large one on Shagramal Mountain, three smaller ones on an adjacent ridge, and another large one on the heights of Oropouche, all of which contain colonies of these wierd, uncanny birds. We have many species of nocturnal birds, but none which shun the light of day as does this one, passing all its days in foul and noisesome blackness, only issuing forth in search of food when the early tropic night has settled down over the earth.

The birds are of quite large size, having an average length of thirteen inches and a wing-spread of twenty-eight to thirty inches. The tail and wings are long, the latter pointed and very strong, giving the bird wonderful quickness of movement. The color ranges from cinnamon to chestnut brown, with a few round white spots scattered over the whole of the body and the wing-coverts. The bill is large, strongly hooked, and very powerful, while the feet slightly resemble those of the pigeon, except that they are armed with strong, curved claws. The bird does not perch, but either squats on a flat surface or clings to the rocks like a Swift.

¹ Read before the Delaware Valley Ornithological Club, November, 1930.

My first meeting with the birds was at the Shagramal Cave. Starting from a cacao plantation at 800 feet above sea-level, we climbed up the ridge to about 1200 feet, where all cultivation ceased, and the tangled, rock-strewn base of Mt. Shagramal begins. The trail is little used and badly obliterated, and our guide none too certain of the way, so that many false starts are made, only to be retraced. Masses of jagged rock strew the mountain side, interlaced with roots and vines, the whole choked with an undergrowth which only the humid tropics can produce. At about 1600 feet the conditions become infinitely worse. It is from this point upward that the moisture laden clouds break against the mountain slopes, drenching the vegetation continuously. The forest trees are laden with damp green moss, huge leaved, semi-parasitic plants cling to every point of vantage on trunk and limb, while underneath every foot of ground space is choked with masses of small palms and wild plantains, the whole interlaced with an almost machete defying tangle of wire-like creepers.

After reaching an altitude of nearly 3000 feet the trail dropped suddenly down a thirty foot cliff into a ravine, into which we scrambled much after the manner of our Simian ancestors, to continue the journey down the ravine, over a ridge, and into another ravine, where at a sharp turn we came unexpectedly to our journey's end. At this point the ravine ended at the mouth of the cave, into which the little brook flowed, continuing its downward rush through subterranean channels, emerging, perhaps, far down the mountain slope. The mouth of this cavern is about thirty feet wide and forty feet high, arched overhead and festooned with short stalactites. As we reached the mouth of the cavern, there suddenly issued from its depths the most infernal uproar imaginable, hoarse guttural croaks and high-pitched, piercing shrieks, as though the cave mouth were the exit to Dante's Inferno, and all its fiends were pouring forth. Preparing our lights, we descended over a steep slope of loose debris for some thirty feet, where the cave opened out into a huge vaulted chamber, the roof of which rises much higher than the entrance, and the floor of which is at least forty feet lower.

Inside the cavern the noise was deafening and conversation was about as easy as on an open aeroplane. As our eyes become

accustomed to the dim light of the torches, the shadowy forms of the wildly gyrating birds may be seen overhead, while the ledges around the sides are lined with the mound-shaped nests, most of which were occupied by one to three shrieking demons. I estimated that this chamber alone contained not less than seventy-five birds, but all estimate must of necessity be very difficult. The floor of the cave is everywhere covered with loose rock, cold and slimy with the excrement of the birds and the dripping water from above. In many places, where not washed away by the inflowing water, the manure lies in great heaps, from one to three feet in thickness.

Leaving the large chamber, we passed inward at a sharp decline for about twenty-five yards, when the second and much smaller cave was reached, which contained perhaps fifty birds. Passing still further in, the cave contracts abruptly, bends sharply to the right and descends at a sharp angle. The floor is of smooth rock, swept clean of all debris by the inflowing water, which has cut a deep narrow channel in the rock. After extending some forty yards in the new direction, the cave seems to end in a sheer-walled, well-like pocket about twenty-five feet in depth by twelve feet in diameter, but upon close examination it may be seen to bend sharply to the left around a shoulder of rock. Having no means of descending further, we returned to the upper cave, examining more closely everything about us.

Just below the innermost colony of Guacharos the haunts of the cave bats, which are here in myriads, begin. Disturbed by the lights, they take to wing and pour in a continuous stream backward and forward, chattering and squeaking, and often brushing our faces with their wing tips. So numerous were they that at one spot I caught thirteen at a single sweep with a butterfly net.

The heaps of manure and sediment are honeycombed with rat burrows; over the slimy walls roam swarms of crickets which have developed antennae five inches long, by which they are able to find their way about in this stygian darkness.

The men presently brought in a long slender tree-trunk, by means of which many of the ledges were reached and the nests examined, but neither eggs nor young were found, the breeding season having already ended for the year.

In all the nests, on the ledges, and scattered thickly over the

floor of the cave were small, round, hard seeds, the size of a small marble, as well as larger oval ones. At the time I was unable to determine their exact nature, but subsequent research in the Oropouche cave proved them to be seeds of two species of palm tree fruit. Many of these seeds had germinated, sending up long, slender, stiff sprouts, of a pale yellowish white color, due to the entire absence of light in the cavern. The temperature of the Shagramal cavern was found to be 69° F. at 3 P. M., and its altitude above sea-level 2125 feet.

The final question to be solved was the shooting of some of the birds for museum specimens. At the outset nothing seemed simpler than to shoot the birds flying about under the roof of the cave, which were plain enough to the eye, but which promptly became invisible when sighted along the gun barrel. At the first shot my hair actually rose and I grew cold at the thought that the concussion of the shot might easily have dislodged loose masses of rock from the roof to crush us like rats in a trap, but fortunately nothing worse happened than to start a perfect pandemonium among the partially quieted birds, so that their efforts before seemed mere child's play in comparison. As soon as sufficient specimens were secured we were more than glad to escape from the cave into the glorious light of day.

What a sight we were after six hours spent in that gruesome hole! Bruised and battered from innumerable falls over loose stones and covered from head to foot with brown manure and slime. It was dark before we reached the plantation house, where, after a bath, dry clothes, a good long "planters' punch," and a hot dinner, we lounged in easy chairs and discussed the curious adventures of the day.

Being disappointed at not finding eggs or young in the Shagramal cave, we prepared to visit the others in the region. Guides were secured, a rope-ladder forty feet long made, an acetylene lamp secured, and everything made ready to explore them thoroughly. A toilsome climb up the valley brought us to the virgin forest and then the usual fight through the jungle, with the same masses of cold, wet vegetation to cut through. At ten o'clock we reached the first cave, which proved to be a huge well-like affair, some sixty feet deep and twenty-five feet across, and with the top bridged

over with solid rock, leaving a small opening on either side. One of these was sheer-walled to the bottom, but the other offered a precarious descent for about thirty feet, but from there a sheer drop. Bringing the rope-ladder into use, we made the descent safely and found conditions below much as in the big Shagramal cave. The acetylene lamp was a big improvement over the old kerosene torches and we were able thoroughly to explore the numerous ledges and cavities of the walls. A pyramid of rock rose from the centre of the floor to a height of about thirty feet, and mounting this we could examine many nests, but all in vain, no young or eggs.

Two more, rather uninteresting caves were visited, with like results. At the left of one of these cave mouths there was a small grotto, in which I noticed some bats flying about and while attempting to catch them I had an exceedingly narrow escape from a bad, if not fatal accident. Entering the grotto without a light, I stood for a few moments sweeping about with the net at the flying animals, and then not being able to see sufficiently well, called for a light. When it arrived, I was horrified to find myself standing on the very brink of a well-like hole about five feet across and some twenty feet or more in depth. The slightest movement forward would have sent me headlong into it.

The negroes of this region are very much afraid to enter these caves, only a few of the hardier spirits venturing to do so in quest of young Guacharos, which are considered a great delicacy by many people, both white and black. When questioned as to just what they fear, they will tell you anything except the real truth, which is a superstitious fear of the birds. All are firm believers in "obiah" (a modern survival of African witchcraft), and doubtless consider the birds to be possessed of a "jumby" or devil of some sort. Most will enter with a white man, that is behind him, never in front, thinking doubtless that the powerful magic of the white man will protect them.

On my return to Trinidad the following year in June, I again visited the Aripo caves in the hope of securing young and eggs, but again failed. Having heard much concerning the Oropouche cavern, I resolved to visit it at once in the hope of finding young birds still there.

Leaving the train at Arima, we travelled six miles in a carriage to Valencia, where we were met by the negro overseer of the Oropouche estate with saddle and pack animals. Two miles beyond Valencia the main road was left behind and we struck off into the hills over a bridle path, twisting and winding through steep ravines, doubling back and forth up precipitous hillsides to the crests of narrow ridges, only to plunge down through the rain soaked jungle into a gorge beyond. Now the iron-shod hoofs clattered over a bit of rock strewn trail, now sank knee deep into yellow mire, and again carefully picked their way over long stretches of "corduroy," which covered a treacherous quagmire beneath. For six miles we journeyed through unbroken jungle, then suddenly emerged into a district of limestone, where little clearings had been hewn out of the wilderness along the trail, and cocoa planted. The last three miles runs through a most picturesque region of precipitous-walled ravines and narrow ridges rising hundreds of feet above the streamlets, and from the crests of which the blue waters of the Carribbean are often visible.

The estate lies in a little valley, surrounded on three sides by towering forest-clad ranges. At the head of the valley rises a limestone cliff, from the base of which gushes a cold, clear brook. Whence it takes its source, no one knows, for the tangled mass of hill and ravine above was unexplored. Beginning in some forgotten age this tireless sculptor has little by little eaten away the soft limestone along its underground course and formed what are today the Oropouche caverns, home of the Guacharos.

The overseer promised the service of two Spanish Creoles who knew the cave well, and who duly appeared two days later fully equipped for the trip. The method of securing the young birds is unique. Two men are necessary, one of whom carries a kerosine *flambeaux*, consisting of an earthenware bottle and a bit of asbestos for a wick, while the other is armed with a long, light bamboo rod. At the smaller end of this pole is lashed a slender wooden rod, curved at its extremity into the form of a semicircle, and with a huge fish-hook attached to its end. A foot above the hook is wound a wax taper, made of wild, black beeswax and a cotton cloth, the wax being warmed, pressed against the cloth and the whole twisted. Several inches of this taper stand erect, and

when this is lighted it gives a bright flame, illuminating the ledges and exposing to view the nests, into which the hook is inserted, moved about, and the young, if any are present, easily dragged out. Thus fully equipped we entered the cave, which is some twenty minutes' walk from the house.

As we halt beside the stream at the cave mouth, to prepare the lights and remove superfluous clothing, a sentinel Guacharo gives the alarm, and the unearthly din commences. The entrance to the cavern gives little hint of the interior, being merely a perpendicular cleft in the rock about twelve feet wide and thirty-five feet high, the sides of which have been fantastically carved by the outpouring waters.

Entering the icy water we wade knee deep along its rocky floor for about twenty-five yards, when an abrupt turn to the right reveals the first cavern. As our eyes become accustomed to the dim light, the outlines of the cavern gradually appear, the vaulted ceiling rising to a height of not less than sixty feet, while the width is nearly as great. Roof and walls are festooned with gleaming stalactites, not of great length as yet, but still of fantastic shape and design. Scattered about the face of the walls are small water-worn cavities and jutting ledges, all now occupied by nests of the Guacharos.

Jacinto, the bearer of the bamboo pole, now lights the wax taper and the search for young birds begins. As the light passes along the ledges the nests are clearly revealed, most of them with one or two occupants, which, at its approach launch themselves precipitately into the mass of whirling, shrieking feathered demons. Again and again the wax taper is extinguished by rushing wings; nest after nest is searched by the ruthless hook, but neither eggs nor young are found. Just when we despaired of success, a nest was discovered cunningly tucked away between two stalactites, the parent birds were dragged therefrom and two sprawling, shapeless young revealed. Without ceremony they, too, were jerked squawking over the edge of the nest and fell into the water below, from which they were promptly rescued. Further search revealed another nest with two young, one with head feathered out and wing and tail quills nearly fully developed, but still such a shapeless mass of fat as to be absolutely helpless. At this point our wax was exhausted

and we left the cave, only having explored the first cavern, which proved to be nearly two hundred feet long and which contained not less than two hundred nests and probably three hundred birds. Anything like a correct estimate of their numbers would be impossible. The air seems to be filled with them, while at the same time most of the nests appear to have one or more occupants.

A few days later we again entered the cave, and after traversing the first chamber, enter a low tunnel-like passage about twelve feet in diameter, extending nearly a hundred feet, then opening abruptly into the second cavern. This is higher and wider than the first, but shorter, being nearly round, but is badly choked on one side by masses of fallen debris. Many nests were found here also, which, when explored yielded nine young but no eggs. It is in this cavern that the only dangerous spot was encountered. At the lower, or outer extremity two passages lead towards the first cavern, through one of which flows the greater part of the water. One not acquainted with the conditions would naturally suppose that the passage through which flows the water would be the main outlet, but herein lies the danger. The passage containing the water extends some thirty feet, bends sharply to the right and stops, while at its extremity is a whirlpool through which the stream rushes, to emerge through various small openings in the floor of the outer caverns. A slip into this pool and one's fate would be sealed, while the body of the unfortunate would very probably never be recovered.

Another low passage leads upward from the second cavern, to a third, about equal in size, which also contains birds. Just beyond the third chamber the cavern apparently ends, the water emerging from under a rocky roof almost touching it. I suspect, however, that other chambers exist beyond, because the chatter of bats could be heard coming from beyond the rocky barrier. The Oro-pouche cave is by far the most striking of all, due perhaps to the large volume of water flowing through it, as well as to its symmetry and to the greater number and beauty of its stalactites, while it undoubtedly contains as many Guacharos as the others combined.

The young bird is a most extraordinary creature, being, until fully feathered, a shapeless, helpless mass of fat, it being from this characteristic that the birds have received their name of "Oil

Bird." A bird so young as to be but sparsely clad with down will weigh from sixteen to eighteen ounces, which is the average weight of the adult bird, while those with the wing and tail quills showing slightly will weigh from twenty-two to twenty-four ounces. This excess of fat persists until the bird is fully feathered, and until it has been absorbed the young bird is absolutely helpless. So abnormally fat are these young that in falling a few yards onto the rocks they will actually burst open. The adults are very lean and tough and give no sign of their early corpulence.

As previously mentioned, the food of both young and adults consists in a great measure of the fruit of two species of palm, but what replaces this food when there is no palm fruit, I cannot say. The breeding season evidently corresponds to the time of greatest abundance of this palm fruit, which undoubtedly contains large quantities of oil, hence the obesity of the young. The stomachs of the young birds taken at Oropouche contained the smaller variety of palm fruit in various stages of digestion, while birds kept alive in a box for several days left quite a number of seeds. It is not quite clear whether these seeds are regurgitated or whether they pass through the alimentary canal, but I rather suspect that they are regurgitated after the manner of the Owl's pellets of bones and hair.

Here at Oropouche I saw the Guacharos flying in the open at night for the first time. Every evening at almost precisely seven o'clock they began to leave the cavern on their nightly forays. Flying in every direction to their feeding grounds, some always passed high over the estate buildings and invariably screamed their harsh defiance when overhead. Often while lying awake at night or just dropping off to sleep I would again hear that harsh demoniacal cry, fading away into the distance and would vividly recall the noisesome, clammy walled caverns and their curiously degenerate inhabitants.

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FOOD POISONING IN SHORE BIRDS.

BY OLIVER L. AUSTIN, M.D. AND OLIVER L. AUSTIN, JR.¹

DURING the summer months, schools of blackfish (*Globicephala melaena*) find their way around the tip of Cape Cod into Massachusetts Bay. The majority finds its way out again into the open sea; some are beached and killed by fishermen, the carcasses being buried after the case oil is extracted; others become stranded and die along the shores. When this last occurs, local authorities bury all carcasses likely to become offensive. September 14, 1930, a quahaug fisherman reported to our Ornithological Research Station that following the coming and departure of a school of these mammals the month before, some blackfish had been stranded and died on Billingsgate Island and Jeremy's Point, isolated and uninhabited places in the bay; that migrating shore birds feeding at these carcasses were dead or seriously ill. The following day our investigation determined the following facts:

On a sandbar, above high-water mark, connecting the two elevated parts of Billingsgate Island, were the badly decomposed carcasses of two blackfish and one seal (*Phoca vitulina concolor*). These were covered with swarms of blow-flies (*Calliphora*) and filled with their maggots. Maggots crawled about the adjacent beach which had been heavily tracked by birds' feet. Within a radius of seventy-five yards were found 17 dead Turnstones (*Arenaria interpres morinella*) evidently having succumbed within a week. Nearby, were 5 Turnstones and 9 Sanderlings (*Crocethia alba*) so sick they could fly only a few feet and run not at all. Also, there were 37 Sanderlings sufficiently strong to escape capture but obviously ill. On Jeremy's Point were the rotting bodies of 25 blackfish covered with flies and filled with maggots. A flock of 47 Sanderlings and 3 Turnstones, apparently in perfect health, were about the carcasses, some perched on the bodies. They were seen to catch and swallow flies but none were seen eating maggots. The bodies of 2 Turnstones, dead two days, were found within 30 yards of the blackfish. Some years ago it had been attempted to make Jeremy's Point a protected Tern rookery, but the endeavor

¹Contribution No. 1 from the Austin Ornithological Research Station.

was abandoned after finding it impossible to exclude marauding mammals. On our previous visit to the Point, the preceding July, abundant evidence was found of the persecution of the inhabiting Common Tern colony by mammals. This day, September 15, numerous skunk and cat tracks were observed. So it is presumed that dead and sick shore birds there had been disposed of by the predators.

The behavior of the sick birds was characterized prominently by a general muscular paralysis, particularly of the legs. Undisturbed, they crouched motionless on the beach, legs drawn together under the body, bill extended flat on the sand. When approached, they endeavored to escape by walking. The less seriously ill could limp a few feet with many falls; the others found their legs quite unable to support them. None was able to escape capture by running. Some were unable to raise their bodies from the ground when attempts were made to use the wings; others were able to fly three or four feet at most; none made flights of over fifty yards.

At Billingsgate a Pigeon Hawk (*Falco columbarius*) twice swept down, seized an ailing Sanderling in its talons, and proceeded to eat the viscera through the back.

Nine Sanderlings and five Turnstones were captured, placed in gathering cages and brought to the station for observation. One of each species expired on the way. The others were put into our large over-night cage with a heavily sanded floor. Several low containers filled with fresh water were placed within easy reach of the birds.

Here the behavior of the birds duplicated that observed on the island—unwillingness to move, and paralysis. All were having a frequent diarrhoea with badly smelling, watery, green stools expelled with force as if due to a violent peristalsis. The feathers of the anal region were all stained green. Thirst appeared to be urgent, the birds drinking greedily when water was placed within reach. When sufficiently recovered to move about, they took a drink every few minutes. They appeared to enjoy standing in the basins. Drinking water acted as a stimulant. Within a few hours two birds recovered sufficiently to wobble about. The following morning two more had made similar progress. Careful observation determined the presence not only of muscle weakness but of a pro-

found disturbance of equilibrium and coördination as if the causative toxin had involved the cerebellum. For all the birds, the diarrhoea appeared to have terminated at the end of 48 hours. The muscle weakness disappeared first from the neck, next from the wings and last from the legs. The birds were able to fly across the cage before they were able to stand longer than a second or two.

By the evening of the 17th four Sanderlings and one Turnstone acted normally, were banded and released. The Turnstone mounted rapidly and flew out over the marshes on toward the hard sand beaches of the bay a half mile away; the Sanderlings flew 150 yards down into the marsh, and began feeding on a mud flat at once.

On the 18th the remaining birds were offered minced quahaug. This was taken readily by all but one Turnstone and one Sanderling which remained badly prostrated. These were fed forcibly. On the 20th all but these two were liberated, evidently fully recovered. On the 23rd these last two were discharged cured.

The Turnstone and Sanderling which had died on the way to the station were autopsied carefully. They were found to be grossly normal excepting the digestive tracts. Both were well nourished and fat. In the Turnstone the abdomen was hard and distended by gas filled intestine, the gizzard splotched with small areas of green material, the liver normal, gall bladder distended, duodenum empty but deeply congested, the cloaca fairly well filled with green putty-like material. The entire intestinal tract bore evidence of severe irritation. Aside from an empty gall bladder and normal gizzard, the Sanderling evidenced the same pathology, with the pathological changes more profound. Lack of equipment prevented bacteriological and microscopic study.

Since the clinical story and pathological findings parallel closely the maladies in man known as ptomaine poisoning, botulism and acute gastro-entero-colitis, it may be deduced that these birds suffered from symptoms of similar etiology, these diseases in man being due to bacterial contamination of ingested food. In all probability the birds did not eat the decomposed infected flesh of the blackfish but swallowed bacteria and toxins adhering to the bodies of the flies and possibly the maggots infesting the carcasses.

North Eastham,

Cape Cod, Massachusetts.

AUDUBON'S SHEARWATER IN THE UNITED STATES.

BY T. S. PALMER.¹

BIRD collectors and students spend much time in securing specimens and making observations in the field which may or may not be used as a basis for published information. Specimens though properly preserved may deteriorate or be destroyed by accident, notes properly published and distributed may be buried in publications which in later years are seldom consulted, or the dates and places may become so changed in copying that the original records become almost unrecognizable. What is the fate of specimens and records after the lapse of years? The object of this paper, therefore, is not so much to trace the development of our knowledge of Audubon's Shearwater or to give an exhaustive discussion of its distribution, as to summarize the present knowledge of its occurrence on the Atlantic Coast as an illustration of the disposition of specimens and records in general.

About 100 years ago Audubon started for Europe to arrange for the publication of the drawings for his great work on the 'Birds of America.' On May 17, 1826, he sailed from New Orleans on the cotton Schooner 'Delos,' Capt. Joseph E. Hatch, bound for Liverpool, where he arrived July 21. Of the 65 days of the voyage more than half were spent off the coast of Florida. In his Ornithological Biography (III, p. 621) he writes, "On the 26th of June, 1826, while becalmed on the Gulf of Mexico off the western shore of Florida, I observed the birds of this species [Dusky Shearwaters] of which some had been seen daily since we left the mouth of the Mississippi and had become very numerous. The mate of the vessel killed 4 at one shot and at my request brought them on board." These birds were carefully examined and preserved. Measurements and sketches were made, full notes recorded, and the specimens were distributed as follows: "One of them I sent to the Academy of Natural Sciences, Philadelphia, by Capt. John R. Butler, of the *Thalia*, then bound from Havannah to Minorca, two others were presented to my excellent friend Dr. Traill on my

¹ Presented at the 44th Stated Meeting, at Ottawa, Canada, Oct. 14, 1926. Revised to July 1, 1930, by the inclusion of several additional records.

first becoming acquainted with him at Liverpool." The disposition of the fourth was not stated. These observations made in 1826 were not published until 9 years later when he also recorded that he had seen the same species off Sandy Hook, probably en route on one of his other trips to or from Europe. Audubon referred to the bird as the Dusky Shearwater (*Puffinus obscurus*), a species which had been described from the Pacific about 40 years before, and four years later he summarized his information in regard to its distribution, as follows: "Abundant during summer in the Gulf of Mexico, and off the coast eastward to Georgia. Some wander as far as Long Island." (Synopsis, p. 339, 1839).

In the same year that Audubon published his final statement, the French ornithologist Lesson described a Shearwater from the shores of the Antilles (*Ad ripas Antillarum*) under the name *Puffinus lherminieri* from a specimen in the Rochefort Museum (Museum Rupifortensis—Rev. Zool., April 1839, p. 102). The name, the museum, and the type locality all indicate that the collector of the bird was L'herminier, a young zoologist of the island of Guadeloupe, who had recently arrived in France to prosecute his studies. Ferdinand J. L'Herminier, in whose honor the Shearwater was named, was born in Basse Terre, Guadeloupe, June 20, 1802, and died at Pointe à Petre, a few miles distant from his birthplace, Dec. 11, 1866. He was a brilliant bird anatomist, now remembered chiefly on account of two important papers on the sternum of birds, one of which he published at the early age of 25 ('Sur l'appareil sternal des Oiseaux,' Mem. Soc. Linn., Paris, VI, 1827). It is Lesson's name *l'herminieri*, revived by Riley, that the species now bears in most systematic papers.

In the time intervening between Audubon's observation and the publication of his account of the Shearwater, Ferdinand Deppe, a German botanical collector, who accompanied Dr. C. J. W. Schiede to Mexico, secured a specimen at Cape Florida at the mouth of Biscayne Bay on the east coast of Florida. This bird, now known to belong to the same species as that described by Audubon and Lesson, was preserved and found its way into the Berlin Museum where more than 40 years later it was examined by Dr. Otto Finsch, who says (Proc. Zool. Soc., 1872, p. 112): "I have examined a fine specimen in the Berlin Museum collected by Mr.

Deppe at Cape Florida (mentioned by Bonaparte as *P. floridanus*, Consp. II, p. 204)." Finsch realized that the bird in question from the Atlantic Ocean was distinct from *P. obscurus* of the Pacific Ocean, and was familiar with Lesson's name, but had not been able to consult his description. He, therefore, renamed the former *Puffinus auduboni*, and this is the basis of the present English name Audubon's Shearwater.

Other early references that should be mentioned are the statements of Giraud in 1844 that "this is another of those stragglers that occasionally visit the coast of Long Island," (Birds of Long Island, p. 370) and Coues & Prentiss' record of a bird 'detected' in the District of Columbia, which was probably a specimen secured in September, 1842. Dr. Coues in monographing the group in 1864 says "The species of *Puffinus* spoken of in a paper published by Dr. D. W. Prentiss and myself in the Annual Smithsonian Report for 1861 (p. 418), as having occurred at Washington, D. C., and doubtfully referred to as the *obscurus*, has since been definitely ascertained to be this species." (Proc. Acad. Nat. Sci., Phila., 1864, p. 138).

Thus, half a century after Audubon had obtained his first specimens, we have records of 5 specimens taken off the coast of Florida, and statements that the species had been detected in the District of Columbia, that it had been seen as far north as Sandy Hook and that it was casual off Long Island. It had been recorded under at least four names: *Puffinus obscurus*, *P. floridanus*, *P. lherminieri*, and *P. auduboni*. Had Audubon trusted to his own intuition and been half as keen to distinguish its characters as he was in naming such birds as Cuvier's Kinglet, Roscoe's Yellowthroat, Rathbone's Warbler, etc., he would undoubtedly have described the bird as a new species, which it was, in fact.

The second period of the history of this Shearwater in the United States covering the last 50 years or more is characterized by definite records of specimens, no new names, but the revival in 1902 of Lesson's long-forgotten name *lherminieri*. The records range from Florida north to Long Island and include various dates, most of them between the middle of July and the end of August. Briefly they are as follows:

1884, Nov. 27, a bird probably of this species was seen by Dr.

H. M. Smith on the Potomac River near Fort Foote, Md. It was seen close enough to be recognized as a Shearwater, but the species was not determined (M. T. Cooke, Proc. Biol. Soc., Wash., 1929, p. 17).

1887, August 1, a specimen reported from Bellport, L. I., by Wm. Dutcher and preserved in the Dutcher collection. ('Auk,' 1888, p. 173).

1893, August 26-27, a specimen observed on Long Island, east of Sullivan's Island, S. C., by Arthur T. Wayne ('Auk,' 1894, p. 85).

1893, Sept. 1, a specimen collected by Capt. C. H. Crumb on Cobbs Island, Va., and reported by Dr. W. C. Rives ('Auk,' 1901, p. 189).

1900, early October, several seen at Virginia Beach, Va., by William Palmer (Rives, 'Auk,' 1901, p. 189).

1908, August 1, two specimens found on Fort Macon Beach near Beaufort, N. C., after the hurricane of July 30-31, and reported by B. McGlone ('Auk,' 1908, p. 472).

1909, August 9, a specimen picked up on the beach south of Coronado, Fla., by R. J. Longstreet ('Auk,' 1926, p. 378).

1910, July 28, a specimen in possession of Stephen C. Bruner, reported from Beaufort, N. C., by the owner (Brimley, 'Birds North Carolina,' 1919, p. 43).

1911, August 10, Sullivan Island, S. C., a specimen reported by Wayne and recorded in Bent's 'Life Histories N. Am. Birds' (Part III, p. 76).

1913, July 13, a bird seen by Francis Harper two or three miles off Shackleford Banks, N. C., between Cape Lookout and Beaufort. "There had been a strong 'blow' from the south and southwest for two or three days previously" (Harper, in epist., Oct. 26, 1926).

1916, a bird collected at Fort Worth Inlet by J. J. Ryman, but which cannot now be found in the Ryman collection of the Florida State Museum (information from A. H. Howell and Dr. T. Van Hyning).

1924, July 25, "more than a hundred" seen feeding on sardines and more than a dozen taken near Cape Lookout, N. C., by Russell J. Coles ('Auk,' 1925, p. 123).

1925, July 26, a specimen from Bogue Banks, N. C., in the U. S. National Museum, collected by Coker and Hildebrand.

1925, August 9, a specimen found south of Daytona Beach, Fla., by R. J. Longstreet ('Auk,' 1926, p. 378).

1926, August 2, a specimen in the collection of the Academy of Natural Sciences, Philadelphia, caught at Cape May, N. J., reported by Witmer Stone ('Auk,' 1926, p. 536).

1926, August 2, fourteen specimens "putrid and stripped of flesh" found by E. von S. Dingle on the beach of the Isle of Palms near Charleston, S. C., four days after a tropical hurricane ('Auk,' 1927, p. 93).

1928, August, four specimens: "One living and one dead, found on the ocean beach south of Daytona Beach, Aug. 3, 1928, and one dead bird picked up in the same region on Aug. 5 and Aug. 13" by R. J. Longstreet ('Auk,' 1930, p. 95).

1929, August 23, "another dead Shearwater of this species was found on the beach." (R. J. Longstreet, *Ibid*, p. 95.)

Having presented briefly the data relating to the occurrence of the bird in the United States, let us examine a little more critically the evidence based on names, records, and specimens, which has accumulated during the last century.

Names: The nomenclature is fortunately rather simple, only four names apparently having thus far been used for this bird, three of which were proposed for it.

Puffinus obscurus, by which it was originally known, belongs properly to a Shearwater described from the Pacific Ocean.

P. floridanus, a manuscript name applied to a bird taken at Cape Florida, was based on a specimen in the Berlin Museum.

P. lherminieri, applied to a bird from the 'shores of the Antilles' (probably Guadeloupe), was based on a specimen seen by Lesson in the Rochefort Museum some 90 years ago.

P. auduboni is merely a new name for the birds referred to by Audubon and other authors as *P. obscurus*.

Specimens: The types of *P. floridanus* and *P. lherminieri*, are probably in the museums of Berlin and Rochefort, respectively. Of the four specimens collected by Audubon, one he tells us was sent to the Philadelphia Academy, but if it ever reached its destination it cannot now be found. Two others reported as having been given to Dr. Traill may be in the Liverpool Museum, and the fate of the fourth specimen is unknown. In other words, all of

the four Audubon specimens seem to have been lost. The only other early specimen, that 'detected' in the District of Columbia, apparently the one reported to the National Institute of Science in 1845, has likewise disappeared and may be considered lost.

Of the specimens recorded in recent years four were sight records and others were not in condition to save. The Long Island specimen of 1887 may be in the Dutcher collection in the American Museum of Natural History; the New Jersey specimen of 1926 is in the Academy of Natural Sciences, Philadelphia; the Virginia specimen from Cobbs Island was in Dr. W. C. Rives' collection; the North Carolina specimen from Bogue Banks is in the National Museum; the Bruner specimen from the same State is in the collection of S. G. Bruner, and there may be others extant; while one or more of the specimens from South Carolina are in the collection of Arthur T. Wayne. The Florida specimens from the vicinity of Daytona apparently were not preserved; and the specimen from Fort Worth Inlet was in the collection of J. H. Ryman, later acquired by the University of Florida at Gainesville, but cannot now be found. Thus, of 7 specimens collected in the first half century and 18 recent occurrences, less than half the number and possibly less than a dozen specimens are still extant and more or less accessible. Only three of the large public museums apparently have any of these skins and only one or two each. In other words, the tangible evidence in the form of specimens which furnish the basis of published records has disappeared in most of the cases and future students who may wish to re-examine the question must rely entirely on the accuracy of the published records for data on distribution and migration.

Records: Audubon not only made detailed notes of the birds on the spot, but according to Townsend "sketched them in the flesh, and recorded his notes on the spot, and with such care and detail that in many cases one can find nowhere else such a complete description of habits." Compare this statement with that of Dr. Coues written with all the assurance of a young man of 22: "Audubon's description of this species is sufficiently pertinent, but the plate he gives is *unusually poor, and by no means true to nature.* The outline of the bill is exceedingly faulty; the line of demarcation of the dark and light colors along the side of the head and neck is

by no means accurate, and the lower tail coverts are represented as entirely white. The exact insertion of the right tibia of the individual figured has always been to me, anatomically speaking, a puzzle." (Proc. Acad. Nat. Sci. Phila., 1864, p. 138.)

In Bent's 'Life Histories of North American Petrels and Pelicans' (Bull. 121, U. S. Nat. Museum) is a very careful summary prepared by Dr. Charles W. Townsend, of the present knowledge of the habits and distribution of the bird accompanied by some of the more important records. On page 76, lines 11-14, appears the statement "Wayne (1894) found a specimen of the Audubon shearwater washed up dead on the coast of South Carolina after the great cyclone of August 26-27, 1894. As a matter of fact, this bird was not found on the date mentioned but after the great cyclone of August, 1893, as will be evident upon turning to the bibliography and referring to the article in 'The Auk,' in which Mr. Wayne mentions some of the birds found after the storm. This record appeared in 'The Auk' for Jan., 1894, p. 85, and refers to the cyclone of the previous August. Again, near the bottom of the same page, is the record of a specimen taken at Bellport, L. I., August 1, 1897. This is the bird recorded by Dutcher in 'The Auk' for 1888, p. 173, which was captured in 1887, ten years earlier than the date alleged. The error, however, should not be credited to Bent's 'Life Histories,' but to Braislin's 'Birds of Long Island,' from which it was apparently copied and where it was first given as 1897 instead of 1887.

The records for New Jersey have fared even worse than that for New York. The early statements of Audubon and others were given due credence at different times by Coues, Baird, Brewer and Ridgway, and by the A. O. U. Committee which prepared the first edition of the 'Checklist' in 1886, and the second edition of 1895. With the appearance of the third edition in 1910 the reference to New Jersey was omitted and only inferentially included in the statement of range as 'North casually from Florida to Long Island.'

The record for the District of Columbia, which Coues at first referred doubtfully to *obscurus* but later, in 1864, asserted positively belonged to this species, was transferred in 1921 to the hypothetical list and referred to *P. griseus stricklandi* ('Birds of the Washington Region,' Proc. Biol. Soc., Vol. 34, p. 13, 1921). The basis for this

disposition of the record is not apparent since the specimen having been lost was not re-examined, while Coues, one of the last to examine it, asserted positively in monographing the group in 1864, that it represented *P. obscurus*, now known as *P. lherminieri*. More recently in 1929 it was restored to the list under the proper name *lherminieri* (Ibid, 1929, p. 17). Virginia records apparently have only one specimen extant as their basis. North and South Carolina records are well fortified by specimens, but of several Florida specimens one is in Berlin and another presumably in Gainesville cannot be found. The other birds reported do not seem to have been preserved.

Summary: Audubon's Shearwater, smallest of the white-breasted species that occur on our Atlantic coast, was picked up off the coast of Florida by Audubon on his voyage to Europe and by Deppe on his voyage to Mexico. Audubon failed to recognize his bird as a distinct species and his specimens are now probably lost. Deppe's specimen found its way to Berlin, was duly recognized as a new species, but the description apparently was never published. Later, a specimen from the island of Guadeloupe carried to France and deposited in the Rochefort Museum was described and named, but, because the description was published in a place where it could not be readily found, was overlooked and the species was renamed in Audubon's honor.

This West Indian bird now has as its scientific name the name of a distinguished zoologist of Guadeloupe and as its popular designation the name of one of America's greatest bird students, a native of Haiti. Carried westward and northward by storms, it occurs frequently along the Atlantic coast from Florida to Long Island and probably regularly as far north as Cape Hatteras. In all probability nearly every hurricane or severe West Indian storm which strikes the coast in late summer or early autumn brings some individuals to our shores, and records would be frequent if competent observers were on hand to identify the specimens. Of nearly 25 records less than a dozen are based on specimens now generally accessible. Some of these records have, in consequence, been discarded and others are almost unrecognizable. The record for New Jersey which was accepted by Audubon, Coues, Baird, Brewer and Ridgway and the early Committee on Nomenclature of

the A. O. U. was discarded in 1910 because no specimen was available and the District of Columbia record for a time seemed in danger of sharing the same fate. The early records for southern Florida have been overlooked or so completely forgotten that a statement appeared in 'The Auk' for July, 1926, p. 378, that two birds reported from that coast constituted two of the three known records, whereas, in fact there were at least two other earlier ones for that State. Finally the record for Long Island has been repeatedly misquoted in such a way as to make it appear that it was published 10 years before the bird was collected.

1939 Biltmore St., Washington, D. C.

ADDITIONAL INFORMATION CONCERNING THE
DOUBLE-CRESTED CORMORANT (*PHALACROCORAX*
AURITUS AURITUS (LESSON))

BY HARRISON F. LEWIS.

SINCE the publication, on December 9, 1929, of my work on "The Natural History of the Double-crested Cormorant," a number of additional items of interesting information about this species have come to my attention, some in scattered published records and some through observation, correspondence, and bird-banding returns. For convenience of reference, such of these items as appear to be of any moment are brought together here.

There have been some changes in the recorded nesting colonies of Double-crested Cormorants and several additional colonies have been discovered. I am under great obligation to the various correspondents mentioned in the following paragraphs as having furnished me with information in regard to these matters.

On the north shore of the Gulf of St. Lawrence a small colony, observed for the first time in 1930 when it contained 30 or 40 breeding birds, was situated on a rock seaward of "Long Island," about six miles south-west of Pointe au Maurier, in latitude $50^{\circ} 16'$ N., longitude $59^{\circ} 52'$ W. This probably indicates a change of site on the part of the colony that I have recorded at Yankee Harbor, about three miles distant, where the rock on which the Cormorants once nested appeared in 1930 to be nearly or quite deserted, owing presumably to severe human persecution in the form of repeated removal of eggs and young. Some birds from the colony off the mouth of Etamamu River may also have joined the colony at the new site.

Owing to the recent construction of a lighthouse on Cormorant Rocks, the Double-crested Cormorant colony that once nested there has moved away and will probably never return. Apparently the birds from this colony have joined the mixed colony of Double-crested Cormorants and Common Cormorants (*Phalacrocorax carbo*) on the cliffs of Lake Island, about a mile and a half north of Cormorant Rocks. There were no Double-crested Cormorants

nesting on Egg Rock when I visited it on June 15, 1930, and it is quite likely that the colony that once nested here has also joined the Lake Island colony, which is certainly much larger than it was in 1928.

The colony at Wolf Bay has decreased from 440 breeding birds in 1928, as published, to 392 in 1930, a decrease of 11 per cent in two years, and the breeding population of the colony on a rock near Fog Island has decreased in the same period of time from 756 to 694, a diminution of 8 per cent. Both of these colonies are situated in government bird sanctuaries and are almost certainly free from disturbance during the nesting season. Their decrease is therefore very disquieting, and is probably due to heavy mortality, caused chiefly by wanton shooting and partly by other human activities, along the birds' migration route, which follows the eastern coast of North America, and in their winter quarters in southeastern North America.

As far as known, there are now, in consequence of the changes mentioned, only 17 nesting colonies of Double-crested Cormorants on the north shore of the Gulf of St. Lawrence, instead of 19, as previously published.

Several additional colonies have been reported from western Canada. A. G. Lawrence, of Winnipeg, published in the "Manitoba Free Press Bulletin" for November 21, 1929, an account of colonies of Double-crested Cormorants at Chitek (or Pelican) Lake, east of Lake Winnipegosis. He obtained his information, supported by photographs, from J. D. B. MacFarlane, of the Dominion Forest Service, who reported that, in July, 1929, several islands in Chitek Lake contained nesting colonies of Double-crested Cormorants and White Pelicans (*Pelecanus erythrorhynchos*), and that there were several hundred breeding birds of the two species on the island on which his photographs were taken. Mr. MacFarlane also reported seeing Double-crested Cormorants in the summer of 1929 at Cormorant Lake, Manitoba, in latitude 54° N. and at Cross Lake, Manitoba, north-east of Cormorant Lake, but he obtained no evidence of nesting at those lakes.

Mr. Lawrence has also informed me, in a letter dated April 15, 1930, that he has evidence of the existence of another Double-crested Cormorant colony, the evidence consisting of a photograph

that shows young Cormorants in part of what appears to be a large colony on an island, and that is inscribed on the reverse side, "Pelican River, Lat. 54°, Mr. Reid."

Dr. J. Frank Wright, of the Canadian Geological Survey, in a letter dated October 24, 1930, states that he visited colonies of Double-crested Cormorants on several rocky islets in Wekusko or Herb Lake (Lat. 54° 45' N., Long. 99° 48' W.) in northern Manitoba, in the summer of 1930. His report is supported by photographs of the nests. Even in that remote locality, he adds, these birds are much persecuted by the gathering of their eggs by prospectors, who use them for food.

While the list of breeding colonies that I published included a colony of about 400 nesting birds on an island in Big Quill Lake, Saskatchewan, I have since learned from reports from J. A. M. Patrick, of Yorkton, Saskatchewan, and from correspondence with F. Bradshaw, of Regina, Saskatchewan, that a much greater total number of Double-crested Cormorants nests on islands in this lake. The colony already reported, which is on an island north of the village of Dafoe, had dwindled to about 80 nesting Cormorants when visited by Mr. Bradshaw in the summer of 1929, but another colony in the same lake, but about ten miles farther east, north of the village of Kandahar, contained about 1600 nesting Cormorants when visited by Mr. Patrick in the same summer, and it is thought that some birds may have shifted from the more western colony to the more eastern one. Mr. Bradshaw is of the opinion that still other colonies of Double-crested Cormorants, so far unreported, exist on other islands in the Quill Lakes.

On page 6 of "The Natural History of the Double-crested Cormorant" I recorded, on Mr. Bradshaw's authority, a colony of 120 Double-crested Cormorants at Johnson Lake, Saskatchewan, and on page 12 of the same publication I rejected, as lacking recent substantiation, an old published report¹ of the breeding of this species at Old Wives Lake, Saskatchewan. Mr. Bradshaw has pointed out to me by letter that Old Wives Lake and Johnson Lake are one and the same body of water, Johnson Lake being the more recent name for it.

In the mid-western United States several additional nesting

¹ Cat. of Can. Birds, Macoun and Macoun, Ottawa, 1909, p. 68.

colonies have also become known and changes in the size of some already recorded have been observed. F. M. Uhler, of the Biological Survey, has kindly informed me in correspondence that he learned in 1929 of a well-established colony of Double-crested Cormorants, containing 29 nests, at Lake Harriet, near Arena, in north-eastern Burleigh County, North Dakota, and that on July 30, 1930, he visited, at Thorp Lake, several miles north-east of Hyannis, Grant County, Nebraska, a mixed colony of Black-crowned Night Herons, Great Blue Herons, and Double-crested Cormorants, which included at least 20 to 30 nests of the Cormorants, situated in low willows, within 20 feet of the ground. The latter colony is apparently the first nesting colony of this species to be reported in Nebraska.

M. P. Skinner has published¹ a notable record of the finding of a single nest of the Double-crested Cormorant, with two eggs, on Molly Island, Yellowstone Lake, Yellowstone National Park, Wyoming, by C. Brooke Worth, of St. Davids, Pennsylvania. One of the birds was seen at a little distance. This is the first certain record of the nesting of this species in Wyoming. These records from Nebraska and Wyoming are filling in the gap that formerly appeared between the colonies in Utah and those in the Dakotas.

In arriving at a usable approximation to the total number of nesting colonies and total existing population of the Double-crested Cormorant, as published in detail in my work previously referred to, I estimated as still unknown 25 colonies, containing 5600 breeding birds. The newly discovered colonies mentioned above form a part of this number and cause no change in the estimated total population of this form at the present time.

William Youngworth, of Sioux City, Iowa, visited in 1930 the colonies of Double-crested Cormorants at Fort Sisseton, South Waubay Lake, and Lake Albert, in South Dakota, and has informed me by letter that, as compared with the size of these colonies as published in my book, the colony at Fort Sisseton remains about the same (with 50 breeding birds), that at South Waubay Lake has become two groups on separate islands and has doubled in size (from 840 breeding birds to 1680), and that at

¹ Condor, Vol. XXXI, No. 1, p. 128, May, 1929.

Lake Albert has increased in numbers (beyond the 200 breeding birds previously reported).

A number of interesting records relating to the migration of the Double-crested Cormorant have been published recently, and others have been obtained from bird-banding returns and from conversation. The most important of such records are listed here.

Dr. H. C. Oberholster has recorded two Double-crested Cormorants¹ seen by him on the Potomac River near Fort Washington on April 13, 1929, and one² seen in the same locality on June 7, 1930.

C. Brooke Worth has reported³ seeing 50 Double-crested Cormorants, mostly migrating north, at Cobb's Island, Virginia, June 7-11, 1929.

Francis M. Weston has recorded⁴ that this species was still present at Pensacola, Florida, on May 18, 1930, which he considered very late for such an occurrence.

Dr. H. C. Oberholser has published⁵ a record of a Double-crested Cormorant observed at Washington, D. C., on August 13, 1929, by Dr. H. H. T. Jackson.

J. T. Nichols has recorded⁶ 41 Double-crested Cormorants observed on July 31, 1929, between Mecox Bay and Montauk Point, on Long Island, New York, by Dr. W. T. Helmuth, Jr., and stated that Dr. Helmuth had seen the species daily in that area since July 4, while Dr. Helmuth himself has published⁷ somewhat later the statement that this species "has become a fairly common, non-breeding, summer resident on Gardiner's Bay," at the east end of Long Island, where "It was noted throughout the summer, usually in numbers of from 10 to 50 or 60 per day."

Francis M. Weston has reported⁸ the presence of Double-crested Cormorants at Pensacola, Florida, on September 29, 1930, earlier than they had ever before been noted there in the fall.

E. F. G. White, of Ottawa, Ontario, told me on November 11, 1930, that a flock of 30 Double-crested Cormorants was seen shortly before that date on the Ottawa River, about 25 miles east of Ottawa, although he did not see it himself. Several birds were said to have been taken from the flock. This is not an unusual occurrence, except that this is the largest flock of these birds known to have appeared in this vicinity. At about the same time a flock of 12 to 15 Double-crested Cormorants was reported to Mr. White from the vicinity of Pembroke, Ontario, about 100 miles west of Ottawa.

¹ Bird-Lore, Vol. XXXI, No. 4, p. 271, July-August, 1929.

² Bird-Lore, Vol. XXXII, No. 5, p. 358, September-October, 1930.

³ Auk, Vol. XLVI, No. 4, p. 555, October, 1929.

⁴ Bird-Lore, Vol. XXXII, No. 4, p. 283, July-August, 1930.

⁵ Bird-Lore, Vol. XXXI, No. 6, p. 410, November-December, 1929.

⁶ Bird-Lore, Vol. XXXI, No. 5, p. 340, September-October, 1929.

⁷ Auk, Vol. XLVII, No. 4, p. 529, October, 1930.

⁸ Bird-Lore, Vol. XXXII, No. 6, p. 433, November-December, 1930.

Interesting winter records that may perhaps represent the extreme rear-guard of a late autumn migration are:

One immature Double-crested Cormorant identified on the coast of Essex County, Massachusetts, on December 22, 1929, by Ludlow Griscom, and recorded by Griscom¹ and by John B. May.²

Two individuals of this species reported³ as present between Watermill and Amagansett, Long Island, New York, on December 21, 1929, by William T. Helmuth, 3rd.

One individual observed at Long Beach, Long Island, New York, on January 4, 1930, by R. T. Clausen and F. G. Garrett, and recorded by John T. Nichols.⁴

The banded birds listed below were all banded as juveniles at the nesting colonies where they were hatched.

No. 334026, banded by Harrison F. Lewis at Wolf Bay, Saguenay County, Quebec, on July 26, 1925, was shot at Vero Beach, Florida, on January 15, 1930.

No. 302355, banded by Harrison F. Lewis in Fog Island Bird Sanctuary, Saguenay County, Quebec, on August 2, 1927, was found at Lake Apopka, Orange County, Florida, on January 1, 1930.

No. A701957, banded by Harrison F. Lewis, at Wolf Bay, Saguenay County, Quebec, on August 9, 1929, was reported, probably killed, in Miller County, in southwestern Georgia, on October 30, 1929. It is unusual for a bird of this species banded on the coast to be found so far inland in the south.

No. A701962, banded like the preceding, was shot at Clewiston, on Lake Okeechobee, Florida, on February 19, 1930.

No. A701973, banded like the preceding, was captured at Lavaltrie, Berthier County, Quebec, on October 12, 1929. As Lavaltrie is about 25 miles east of Montreal, it would appear that this bird had missed the migration route southward by way of the Atlantic coast, and had strayed up the St. Lawrence River.

No. A701998, banded like the preceding, was caught at Neuse River, Carteret County, North Carolina, on January 31, 1930.

No. A703124, banded by J. A. M. Patrick on an island in Big Quill Lake, Saskatchewan, on July 7, 1930, was caught in a fish net at Spruce Island, Lake Winnipegosis, Manitoba, 175 miles from its place of banding in a direction nearly north-east, on September 17, 1930.

No. A703139, banded like the preceding, was shot on the Ontario part of Lake of the Woods, on October 17, 1930. The course taken by this bird was much more easterly and less southerly than the courses of most of its fellows from Saskatchewan colonies.

¹ Bird-Lore, Vol. XXXII, No. 1, p. 23, January-February, 1930.

² Bird-Lore, Vol. XXXII, No. 2, p. 136, March-April, 1930.

³ Bird-Lore, Vol. XXXII, No. 1, p. 27, January-February, 1930.

⁴ Bird-Lore, Vol. XXXII, No. 2, p. 137, March-April, 1930.

No. A703,184, banded like the preceding, was found crippled at Randle Lake, Denison, Texas, October 17, 1930.

Numerous other records of banded Double-crested Cormorants, from both Quebec and Saskatchewan, have been obtained since 1929, but they are not included here because they parallel to a large extent records already published. No record showing complete crossing of the Florida peninsula by a bird from either east or west has yet come to my attention.

In J. D. B. MacFarlane's account of the colonies of Double-crested Cormorants at Chitek Lake, Manitoba, as published by A. G. Lawrence in the 'Manitoba Free Press Bulletin,' it is stated that one set of 7 eggs and another set of 9 eggs were seen in one of the groups of nests in the summer of 1930. It is suggested that the set of 9 eggs contained possibly the eggs of two birds.

Mr. Lawrence, in correspondence, has kindly drawn my attention to a published reference¹ to Double-crested Cormorants which I had overlooked and in which the late Eric B. Dunlop, referring to colonies of these birds in northern Manitoba, states that, according to his experience, incubation begins from the laying of the first egg of a set, and that the birds regularly void the faeces from the nest.

Dr. Charles W. Townsend has kindly drawn my attention to his published² description of an activity of the young Double-crested Cormorants on Percé Rock, Gaspé County, Quebec. He there stated, "The young when fully grown may often be seen practicing flight by ascending a few feet into the air and coming back to the rock." This may be to some extent a habit peculiar to the Percé Rock Colony, which is situated on a broad-topped rock with high precipitous sides, which the young must eventually leave by flight. Young birds on low rocks with shelving shores probably swim away before flight is well mastered, and young birds in nests in trees or on narrow ledges on cliff faces have usually scant room for flight practice.

The Double-crested Cormorant recorded by Francis M. Weston³ as containing a 9-inch catfish when taken near Pensacola, Florida, on March 24, 1929, is the same individual whose stomach contents

¹ British Birds, Vol. IX, No. 5, p. 114, Oct. 1, 1915.

² The Canadian Field-Naturalist, Vol. XXXIV, No. 5, p. 89, May, 1920.

³ Bird-Lore, Vol. XXXI, No. 3, p. 201, May-June, 1929.

are reported on in connection with the same place, collector, and date on page 68 of "The Natural History of the Double-crested Cormorant."

This year (1931) is the centenary of the Double-crested Cormorant's introduction to science, as a duly described species, by Swainson,¹ in 1831. The first century of its formal history has witnessed a great diminution in its numbers. What shall be the record of the next century?

Canadian Nat. Parks, Ottawa, Canada.

¹ Swainson and Richardson, *Fauna Boreali-Americana*. London, 1831, p. 473.

A STUDY OF TWO NESTS OF THE OVENBIRD.

BY MARGARET MORSE NICE.

Seiurus aurocapillus is the most abundant of the eleven species of warblers that nest at Grey Rocks, Pelham, Massachusetts. It is well distributed through all the woods, both hard woods and white pines and hemlocks.

The Songs. The flight song is heard chiefly late in the day and after sundown, but on several occasions I have recorded it in the morning—at 10.40¹ July 8, at 10.08 July 9, at 10.52 July 11, and at 9.15 July 19. The last flight songs were heard July 24, 1925, July 19, 1927, July 23, 1928 and July 24, 1929. In 1927 it was also noted August 19, 22, and 26, and in 1928 August 4 and 9.

The *teacher* song is given constantly through June and after that with diminishing zeal until mid July. The last songs have been noted July 15, 1921, July 17, 1925, July 14, 1927 (except for a single instance July 27), and July 20, 1928. Although I have listened carefully during six seasons for a recrudescence of this song in August, I have never heard it.

This song is not given steadily but in sudden bursts of enthusiasm. Numbers of songs in what might be called complete series have ranged from 16 to 24 in both Massachusetts and Ohio, but any smaller number may occur. A bird may sing for 9 minutes or so at a time, but usually his outburst is shorter. As to the intervals between series and the numbers of songs given per hour, I have few data, since both the nests I watched were so belated that the males had practically ceased singing. On June 15, 1928 in Black Lick woods east of Columbus, Ohio an Ovenbird gave 9 song series at the following times between 7.37 and 10.37: 7.40, 8.11, 8.35, 8.55 (19 songs), 9.30 (24 songs), 9.37 (16 songs), 9.47 (18 songs), 10.08 (few), 10.25 (few). In the hour between 8.50 and 9.50 77 songs were uttered in 4 series.

The length of individual songs varies considerably; the shortest that I have timed lasted 1.3 seconds, the longest 4.2 seconds, both from the same bird in succeeding series. The intervals between

¹ All hours are given in Eastern Standard Time.

beginnings of songs may or may not be fairly regular. A Pelham Ovenbird July 5 at 6.30 A. M. sang with the following intervals between every other song as measured by stop watch: 28, 27, 26, 23, 48, 25, 24.5, 27.5, 25.3, 21.7; average 27.6 seconds. Four song series of three different birds at Grey Rocks June 23 between 10.30 and 11.00 gave varying results. The first showed the longest intervals: 36, 28, 31.5, 33, 33.5, 26, 30, 36, 33; average 31 seconds. The second bird sang at much shorter intervals with one exception: 18.5, 20.2, 20, 38, 18.7, 21.5, 22.5, 20, 20, 23, 17.5; average 21.8 seconds. The intervals in the first series of the third bird were uniformly short: 22, 24, 24.5, 23, 22, 23, 21, 18, 23.2, 23.5, 19, 22.7; average 22.2 seconds. In his other series I noted the length of each alternate song as well as the intervals, the length being shown in parentheses: 14, (2.2) 15, (2.2) 17, (2.9) 14, (1.3) 14.5, (2.7) 19.5, (3.2) 19.8, (2.8) 20.2, (2.8) 18.4, (2.7) 14, (2) 19.7, (3) 18; average 17 seconds.

Nesting Data. Five nests of this species have been found by us in Pelham: 4 eggs June 14, 1925; 3 eggs July 7-14, 1927; 2 newly hatched young July 11, 1927; 3 half grown young and an egg July 18, 1921; 2 newly hatched young and an egg July 16, 1928. These sets are smaller than those given in the books, where 5 or 6 eggs are often mentioned.

The second nest was in an unusual situation—an open space in a brook valley; since the bird had built in the usual Ovenbird manner with dead materials gathered in the vicinity, the dome of dead leaves and grasses among green leaves and grass was strikingly conspicuous; it was robbed by some animal before the eggs hatched. The third and fifth nests, which are the subjects of this study, were typical structures of dead leaves and white pine needles in woodland where they harmonized well with their surroundings.

Chronicle of the 1927 Nest. On July 11 as I was walking through the woods, I heard violent scolding and saw an Ovenbird on a branch with an insect in his bill; ten feet from me was the nest and beside it the mother staring up at me absolutely motionless. Inside were two very small young, blind and naked except for a little down. I retired to a partly concealed spot 20 feet away, but the commotion kept up unabated, assisted by neighbors of five different species. The female rather mildly drove off another pair of Ovenbirds, but paid no attention to the other birds.

Fifteen minutes after my arrival, the male with an insect in his bill descended to the ground, flew up again, scolded and scolded with the characteristic raising of the crest and jerking of the tail; then descended again and ran along the ground towards the nest still objecting. The female became frantic with alarm, apparently warning her mate from such rash conduct. He reconsidered, flew up above the nest, ate his insect and devoted himself to protests at the rate of 77 *chucks* a minute.

After a half hour's wait, seeing that my situation was untenable, at 9.48 I moved to a seat 40 feet away across the brook behind a small hop hornbeam; at once the chorus of objections died down and in two minutes the mother went to the young to brood them. At 10.00 the male came to the nest on a runway from the south; the female slipped out and stood quietly waiting; he fed a large insect and then flew up to a branch above while she returned to brood. After chipping a few times he disappeared. The female brooded for 33 minutes and then left walking to the south. Seventeen minutes later she returned with a sizeable meal, fed, inspected and brooded for 38 minutes. The male appeared with a caterpillar, started to run towards the nest, lost confidence and flew up on a branch; in a minute or two he disappeared. After an absence of 24 minutes his mate returned with food and resumed brooding.

In the afternoon from 3.33 to 5.33 the male failed to appear at all, while the female fed twice and brooded twice. The first brooding was peculiar, for, after she had been on the nest for 17 minutes, she peered out, slowly stepped out and, turning around, stood perfectly still by the entrance; after 10 minutes of this quiet watch she went in again and brooded 14 minutes longer.

On July 12 from 8.00 to 12.00 the female fed six times and the male once. She brooded after five of the feedings, but after one she sat, puffed out and content, for 22 minutes upon a bush a few feet from the nest. There was the most extraordinary regularity in her visits this morning; in one case the intervals between feedings was 36 minutes, but in the other four it was exactly 48.

In the afternoon from 2.45 to 4.45, she fed three times, one interval being 47 minutes, the other 69. After the first feeding she walked away instead of brooding or watching; after the second she brooded for 46 minutes—the longest time I recorded,—but after

the third she again walked away although a great storm was threatening.

The mornings of the next two days showed the same general features as before—long intervals between feedings and only mild interest on the part of the male. On July 13 the female brooded 13 and 44 minutes after her two feedings, but on the 14th she brooded 9 minutes after the first meal, 6 minutes followed by a watch of 17 minutes on a nearby bush after the second meal, and walked away after the last two feedings. The male (who, despite the statement of most books to the contrary, was noticeably brighter on the back and crown than his mate) had been an almost negligible factor in the family economy. He had given one meal each morning on the 11th, 12th and 13th, and two meals on the 14th; on the afternoon of the 12th he had accompanied his mate on one of her journeys to the nest. He had done no watching and almost no proclaiming of territory.

The afternoon of the 14th showed a number of changes. The female gave up brooding (not even watching during this session); she fed once every 39 minutes instead of once every 54 which had been the average up till now. The male, wonderful to relate, brought 4 meals, thus feeding once in 44 minutes in contrast to his former record of once in 201 minutes; he also watched for the first time, once for 11 minutes, later for 16.

During the next two days the male fed even more than his mate, 16 times to her 11 in 9 hours of observation. He watched only twice—for two minutes on the 15th and 17 on the 16th. She, on the other hand, watched 6, 16, 20, 0, and 8 minutes after her 5 feedings on July 15, and 10, 10, 10, 0 and 16 minutes after the 5 the following morning, but leaving directly after the single meal she brought during the afternoon session. The parents now spent a much shorter time in delivering each meal than formerly; instead of standing there for about two minutes they usually finished with a feeding quickly.

Although the female did not mind my scrutiny when she was at the nest, twice when I happened to catch sight of her on her secretive journeys to her home, she froze instantly, once standing motionless for four minutes except for two momentary jabs at passing insects, until finally reassured by my putting away the glasses and retiring as much as possible behind my meagre cover.

On July 17 as I was nearing the nest I heard loud objections and there was mother with her crest and tail up, walking in much agitation up and down a branch and uttering 150 *techucks* a minute. I went directly to the nest and found it empty. On a chance I returned to my seat and everything at once calmed down; soon it was evident that one little bird was only a yard from the nest and that the other was 30 feet off in the ferns, the female caring for the first, the male the second. Each fed its charge three times in two hours, the first baby in the meantime travelling a considerable distance.

When I went to the ferns, the male protested mildly and left. All at once I heard a shrill *peep peep peep*; I followed the sound and found the baby sitting on a dead branch and looking like a little brown leaf. The crop of long down on top of his feathers gave him a very odd appearance. He could not have flown, but his legs were strong. I gently picked him up, and in a minute he went to sleep in my hand.

A loud *tehip* was uttered by the male who appeared with a caterpillar, but to my surprise he simply left with no more demonstration of alarm. A mosquito started to bite the little bird near the tail, he preened in that direction; the mosquito tried again higher up, the bird preened there. The insect flew near the baby's bill and the little fellow pecked at it. Another mosquito alighted on his wing and sucked itself full of blood, the bird paying no attention to it. (I had thought that I saw mosquitos occasionally hovering in front of the nest.) A mosquito started to bite my hand; I brought it before the little bird as a small tidbit, but he did not peck at it until it flew.

The poor little thing was getting very hungry and called and called, a high *peep*—16 to a minute. He peeped more and more insistently on my finger, so I returned him to his twig and went back to my old post. He called *peep peep-peep peep-peep*, then *peep-peep-peep* and every now and then a shrill heart-rending cry that might be rendered *hee hee hee*. One minute's calls were as follows (p standing for *peep*):

P p-p p-p p p-p p-p-p—hee hee hee p p-p p-p p p-p
p-p p-p p-p p-p p-p p-p p-p p-p p-p p-p p-p p-p

The little bird called almost constantly and still there was no

sign of a parent. It was time for me to leave; as I went past the fern bed, I stepped on a dead branch that snapped; on the instant the cries stopped.

Discussion. The most striking feature of the nest life of these birds was its extreme deliberateness—the protracted broodings, the very long intervals between feedings and even the slow motions of the parents when at the nest. All their actions about their home were quiet and unobtrusive, quite different from the jerkiness we associate with Ovenbirds. With these birds it was evident that the fewness of the meals was compensated for by their extra size—astonishingly large amounts of food being given at each trip. The excreta also were very much larger than those of most small birds.

Table I gives a summary of the nesting activities of the pair.

The nesting cycle seemed to fall into two periods—the early one from July 11 through the morning of July 14, the second from the afternoon of the 14th to the end. The early period was characterized by very long intervals between meals, by brooding by the female, by little interest on the part of the male. The second showed a shortening of the intervals between feedings, the substitution of watching for brooding, and greater zeal in feeding on the part of the male than the female.

During the first period the female fed 19 times in $16\frac{3}{4}$ hours or once in every 54 minutes; the male fed 5 times or once in every 201 minutes; both together fed once in 42 minutes. During the later period the female fed 19 times in $14\frac{1}{4}$ hours or once in 45 minutes the male 23 times or once in 37 minutes—once in 20 minutes for both. The female did not change her rate of feeding much; the marked difference between the two periods is due to the active part taken by the male during the last half of nesting life.

The intervals between feedings by the female during the early period ranged between 36 and 85 minutes, averaging 67.6. During the later period they ranged (except for an atypical one of 10 minutes) between 22 and 70 minutes, averaging 40. The male's intervals were as follows: July 14—47, 62, 63; July 15—52, 25, 32, 21, 37; July 16—27, 28, 60, 29, 16, 34, 30 minutes.

The regular routine of nest life consisted in a feeding followed by brooding or watching in the early period and often by watching in the later period, and afterwards a time when the parents defi-

TABLE I.—NESTING ACTIVITIES OF A PAIR OF OVENBIRDS IN 1927.

Date	Time	Hours	Number of times fed by female male	Av. rate of feeding in minutes once in	No. of times brooded	Time brooded in minutes	Times faeces eaten female male	Times faeces removed by female male
July 11.....	9.50-11.50 A. M.	2	2	40	3	75	?	0
	3.33-5.33 P. M.	2	2	60	2	70	?	0
July 12.....	8.05-12.05 A. M.	4	6	34	4	78	?	0
	2.45-4.45 P. M.	2	3	40	1	46	?	0
July 13.....	7.27-9.45 A. M.	2½	2	45	3	80	?	0
July 14.....	7.07-11.37 A. M.	4½	4	45	2	15	?	0
	2.15-5.30 P. M.	3¼	5	22	0	0	1	1
July 15.....	8.09-11.39 A. M.	3½	5	17.5	0	0	2	0
July 16.....	7.58-11.58 A. M.	4	5	22	0	0	4	1
	3.27-4.57 P. M.	1½	1	22.5	0	0	1	0
July 17.....	7.55-9.55 A. M.	2	3	20	0	0	0	0
Total.....		31	38	28	15	364	8	3
								0
								9

nately left the nesting site, going so far away that visits to the nest could safely be made without their knowledge. The periods spent away from the nest by the female during the first three and a half days varied from 17 to 80 minutes, averaging 34.5; during the last two and half days they varied from 14 to 55 minutes and averaged 36.3. Only once was the absence omitted, when the female on July 16 caught a moth from her perch, fed it to the young 10 minutes after the last meal and resumed her watch for another 10 minutes. During the early period the female brooded or watched after 15 of her 19 feedings, i. e., 79 per cent; during the later period she watched after 7 of 16 feedings or 44 per cent. The male watched after four of his 25 feedings—16 per cent.

During the first day the periods of brooding lasted 33, 38, 41, and 29 minutes, an average of 35; during the second day they lasted 29, 12, 25, 12 and 46 minutes, averaging 25 minutes; on July 13, 13 and 44 minutes; on July 14, 9 and 6 minutes. The average duration of these 13 complete broodings was 25.7 minutes. Two incomplete broodings bring the total to 364 minutes thus spent in the first $16\frac{3}{4}$ hours, or 36.2 per cent of the time.

There was much variation in the methods of approach and departure. Only three times was the female visible in the trees before she fed; two of these occurred July 15 when the vegetation was very wet. Almost always she walked under cover for quite a long distance either from the east or west; once she approached from the north and once from the southwest. In leaving, she walked away to the east and west about equally often, usually passing behind the nest, but once in front of it. On July 15 she flew directly to a bush after feeding, four other times she flew up to guard after walking a few feet (instead of her usual custom of walking to the bush and hopping up from branch to branch); only once (July 16) did she fly directly away from the nest out of sight—the stimulus here might have been the fact that the male had just flown from in front of the nest.

The male's favorite pathway led from the south; 18 times he used this route, coming from the west twice and south once. On six occasions he appeared in the shrubbery in the vicinity immediately before feeding. His usual method of departure was to fly directly to the west, but eight times he walked away to the west,

south and southwest. He left on foot once on the 13th, five times on the 14th and twice on the 16th.

The male was never seen to drive off any other bird, but was himself chased by a Hermit Thrush three times when he came to feed on July 13. He was heard singing only 12 times—eight *teacher* songs on the 12th, and two on the 13th; on the 14th he gave two flight songs.

Chronicle of the 1928 Nest. The next summer a well concealed nest containing three eggs was found July 14 half a mile to the west of the one studied in 1927; the female flew off with no special demonstration. The next morning at 8.45 the male scolded as I approached, while his mate darted off and then turned back, all the time in a peculiar attitude with back hunched, wings dragging, tail fan-shaped and body feathers puffed out; she did not simulate lameness, but made herself conspicuous and possibly terrifying to a small animal.

At 7.00 A. M. July 16 two young had hatched. At 7.45 I returned to watch, taking a position about 20 feet away under a small hemlock; fortunately neither parent had known of my visits to the nest on this day. At 8.11 I noticed a bird in the large hemlock to the south; she flirted her tail but uttered no sound. In three minutes she had gone to the nest where she fed a large insect and then started to brood. Unfortunately the male felt differently about my presence. At 8.27 I began to hear objections—at first in a high pitched *tchip*, then with a few *tchucks* mixed in, at last all *tchucks*. He scolded at the rate of 34 to 36 *tchucks* a minute for 22 minutes, his rate then falling to 25, to 21 and finally to 16, when he left after a full half hour of protesting. I moved 30 feet from the nest to no avail, so finally settled upon a post 25 feet away under a spreading hemlock.

The first period of brooding was longer than any I observed with the bird of the previous year, namely 54 minutes. After that the female surprised me by the short periods that she stayed away from the nest—10 minutes the first time, 8 and 9 the next times, but 32 the last that morning. Her periods of brooding (after the first) lasted 12, 23 and 26 minutes. During four hours in the afternoon she brooded from 18 to 48 minutes and stayed away from 12 to 24. Once she came out after brooding 14 minutes, stood a half minute

in front of the nest, stepped in as if cleaning the nest, and then brooded again for 15 minutes.

The next morning the third egg had hatched. Eight hours showed much the same picture as the day before, the female feeding 11 times and brooding after every meal. She showed some regularity in her first three periods away from the nest in the morning; these intervals were 19, 18.5 and 18 minutes, the last two being 23 and 15. The male did not come near.

On July 18 brooding was omitted after two of the six morning feedings and after six of the eight afternoon meals. In the morning at 10.58 the male was heard scolding for a few minutes to the north. At 4.18 he came to the tree above the nest giving a few *tchucks*, then the softer *tchip*, and finally a new sound something like the *chicoree* of a Goldfinch only much fainter; he stood there with his bill full of food, his crest up, his wings fluttering. His mate suddenly dropped down right in front of the nest—an unprecedented manner of approach—and fed the young while the male continued to object; she raised her crest as she turned around, the only time I saw this sign of agitation in her. The male then protested till 4.52 on or near the ground a little north of the nest.

The next day the female was brooding when I arrived at 7.30; she left after 8 minutes. She brooded once again in the morning for 10 minutes after the 9.52 meal, and was on the nest when I arrived at 1.40 in the afternoon. Periods away from the nest varied from 13 to 63 minutes.

As with the 1927 nest, the afternoon of the fourth day showed several changes. In both cases the young were fed twice as rapidly as they had been before, but this time the improvement was entirely due to the female since the male did not appear at all. There were also other innovations. Instead of always leaving immediately after feeding as had been her habit when she did not brood, on five occasions she browsed about in front of the nest catching small insects for herself. Always before this she had left on foot; today at 2.38 and 3.10 she flew directly from the nest. Instead of always eating the excreta as the 1927 female had done, at 2.38 she carried away a sac as she flew.

On the morning of July 20 I noticed on the way to the nest that big mushrooms had been gnawed by some animal, perhaps a fox.

The nest was empty and beside it lay five wing feathers. During the many hours spent in watching this nest, I had come to regard the brave and devoted little mother with admiration and affection, so that the disaster brought a sense of personal loss, as well as disappointment at the cutting short of the study.

Discussion. A summary of the main features of the four days is given in Table II.

When brooding the bird faced south sitting sidewise to the entrance, except on three occasions when she faced north. The first day she brooded 62 per cent of the 8 hours, the next day 52 per cent, the next 25 and the last 5 per cent—37.4 per cent of the time during all four days. If only complete periods of brooding are considered, there were 8 on the first day lasting from 12 to 54 minutes and averaging 28.6; on the second 9 periods lasting from 16 to 47 minutes and averaging 27.1; on the third day 5 lasting from 14 to 29 averaging 21.8, while on the last day there was but one of 10 minutes. The average of all 23 was 27.1 minutes. This figure and the percentage of time spent in brooding during the first three and a half days are very much the same with both females.

With one exception the female always walked some distance to the nest; 35 times she came from the south and 17 from the north. She left 31 times to the north and 17 to the south. The time spent at the nest in feeding was measured by stop watch in 24 cases. Seven instances on the first day varied from 50 to 205 seconds averaging 90; 9 on the second day ranged from 61 to 120 seconds averaging 80; 5 on the third day ranged from 70 to 205 averaging 126; 3 on the fourth day ranged from 53 to 72 averaging 62. There was no watching by the nest as with the other female, but possibly this might have appeared later, although this year there were no convenient bushes at hand as had been the case the year before.

Some of the meals this bird brought to her brood were moderate in size but others seemed enormous—sizeable moths, great brown caterpillars and several other creatures at one trip. During the first day intervals between meals ranged from 22 to 76 minutes averaging 50 minutes; during the second from 28 to 70 minutes, averaging 48 minutes; during the third from 7 to 56 minutes, averaging 36, during the fourth from 8 to 48 averaging 22 minutes. The average interval during July 16 and 17 was 47 minutes, during

TABLE II.—NESTING ACTIVITIES OF A FEMALE OVENBIRD IN 1928.

Date	Time	Hours	Number of times fed	Average intervals between meals	Number of times brooded	Minutes brooded	Percent of time brooded	Time faeces eaten removed
July 16....	7.45-11.45 A. M. 1.34-5.34 P. M.	4	5	45.5	5	143	60	? 0
July 17....	7.12-11.12 A. M. 1.30-5.30 P. M.	4	6	46.2	6	137	57	? 0
July 18....	7.20-11.20 A. M. 1.10-5.10 P. M.	4	8	31.7	2	39	16	? 0
July 19....	7.20-11.50 A. M. 1.40-5.10 P. M.	4½ 3½	8 11	31.0 16.7	2 1	18 8	8 3	2 0 4 1
Total....		32	54	35.5	30	719	37	6 1

July 18 and the morning of July 19 33 minutes, on the afternoon of July 19 16.7 minutes. Therefore the feeding during the fourth afternoon was twice as rapid as that during the day and a half preceding and three times the rate for the first two days.

The time spent away from the nest during the first three and a half days varied from 6 to 62 minutes averaging 22; during the last afternoon from 7 to 26 minutes, averaging 14. Since she brooded as much as the other bird it was necessary for her to shorten her individual absences in order to achieve the large amount of feeding necessary; the 1927 female fed once in 50 minutes during the first four days, this bird once in 35.5 minutes.

The female of this pair was unusually tame for an Ovenbird, the male strikingly timid. Three times during the 32 hours of watching he came near and scolded; the one time I could see him he had food. In 1927 it was not until the afternoon of the fourth day that the male took an active interest in his brood, so it is possible that this male might have behaved differently during the last half of nest life. As for singing, I recorded 80 *teacher* songs and 7 flight songs; all of the latter and 21 of the former were delivered in fairly close proximity to the nest, so probably came from the male in question, but because of the presence of another pair of Ovenbirds in the vicinity, I do not know how many of the other *teacher* songs were given by this bird.

Comparison of Three Nests. Mr. H. Mousley ('The Auk,' XLIII, 1926, pp. 184-199) watched a pair of Ovenbirds with two young near Hatley, Quebec from July 1 to 8. His birds fed at longer intervals than mine, the female brooded longer—once 130 minutes—and both were timid. During the first half of nest life the young were fed once in every 44 minutes, during the last once in every 32 minutes. His male fed as much as the female and sang 215 times during the 48 hours of observation. The young left at the age of 8 days.

The female at my second nest had greater demands upon her than the other two females, for she had to assume all the feeding of three young, whereas they had the assistance of their mates in the care of two young. If we calculate the rate of feeding of each nestling, we find during the first half of nest life that Mr. Mousley's young birds were each fed once every 88 minutes, each of my 1927

brood once every 82 minutes and each of the 1928 brood once every 117 minutes. During the last half of nest life each of the Canadian nestlings received food once every 64 minutes, each of the two in my first nest once every 50 minutes, while during the fourth afternoon each of the three in my second nest once every 57 minutes. There is evidently something of an adjustment between the rate of feeding and the needs of the young.

It will be interesting to learn of the home life of other ground nesting warblers. Do Black and White and Nashville Warblers practice the short periods of brooding and rapid succession of small meals in vogue with all members of the family so far studied except *Seiurus aurocapillus*? Possibly the nesting habits of other members of its genus—the Water-Thrushes—will be found to follow the slow rhythm of the Ovenbirds.

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THE BIRD WORK OF THE BIOLOGICAL SURVEY¹

BY PAUL G. REDINGTON

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MORE than 45 years ago, the efforts of two committees of the American Ornithologists' Union, chosen to study bird migration and the economic relations of the English Sparrow, resulted in the establishment of the organization now known as the Bureau of Biological Survey, with Dr. C. Hart Merriam, then secretary of the Union, as Chief. Some of you will recall that when this work was undertaken under Government auspices, the organization functioned as a section of the Division of Entomology, and its studies included economic ornithology, a phase of the work that was later to be much expanded. Studies of migration from the first included geographic distribution, and the work of the Bureau is apparent in the check lists published by the American Ornithologists' Union in 1886, 1895, 1910, as well as in the one now in preparation. With the 1910 edition was issued a map of North America prepared in the Biological Survey showing in colors the seven life zones with their divisions.

It is scarcely necessary to remind the older members of the Union of the natural-history explorations that the Survey has conducted, mainly in the Western States and Alaska, in Mexico and Central America, and in northern Canada. The earliest important work of this nature was done in the summer of 1889 in the region of San Francisco Mountain in Arizona. The studies there made correlated the broad transcontinental life zones with belts of similar characteristics that encircle lofty mountains. The principle had been published by Humboldt about 1805, as a result of his work in the Andes, and of course was recognized by a few students of geographic distribution to be applicable to North America, but it remained for Merriam to analyze the factors governing the ranges of the characteristic North American species of birds and mammals

¹ Read at the 48th stated meeting of the American Ornithologists' Union, Salem, Mass., October 20-24, 1930.

and to map in detail the zones themselves. Other similar studies followed the Arizona work, notably explorations in Idaho and in southern California. In the two decades between 1890 and 1910 this phase of the work was greatly expanded, and the correlation of natural life zones with the production of agricultural crops was elaborated. Extensive explorations in Mexico and Central America, in Alaska, and in northern Canada resulted in a greater accession of data and specimens illustrating the geographic distribution of birds, mammals, and some other classes of vertebrates than had ever before been accumulated during an equal time in this country. The same period and the decades that followed were marked by great activity of other workers along related lines, and by extensive publication of results. All these efforts enabled the Survey to make notable additions to the wealth of knowledge that has been accumulating since its inauguration.

The maintenance of Federal bird reservations by the Biological Survey began in 1903, and this feature of the work has grown in volume until these reservations now number 86, including several primarily devoted to big-game animals, but on which birds also are protected. This work is in the early stages of a great expansion under the provisions of the Migratory Bird Conservation Act, passed early in 1929.

The conservation measure generally referred to as the Audubon Law, now a part of the protective statutes of many states, was first enacted through the efforts of a Committee of the Union about 1886, and later sponsored by the National Association of Audubon Societies. With the exception of several of the Rocky Mountain and Great Basin States, it has now been operative for some years in most of the country. The group classification of birds in this law was incorporated in the Federal Migratory Bird Law, in the Migratory Bird Treaty, and later in the Migratory Bird Treaty Act.

In the work of the Survey that may be classed as conservational, research in the food habits of birds, and to a less extent in similar habits of mammals and of reptiles and amphibians, has played an important part. From the beginning the Bureau has had the services of some of the most eminent students of economic zoology that the country afforded, and it early built up unsurpassed

facilities for the study of the food habits of our wild life. The Bureau's long lists of publications on this subject have exerted a very great influence on bird protection based on economic grounds.

Studies of bird migration, one of the twins whose budding activity had given rise to the Survey, were supplemented in 1920 by the taking over of bird banding, a means of investigation that had been carried on by the American Bird Banding Association and by individuals in a somewhat sporadic fashion for more than 15 years. With official espousal of this cause a decided impetus was given to the study of migration, for in place of data that, at best, recorded only mass movements, it substituted knowledge of the movements of individual birds. Bird banding is of special practical importance in these days of the intensive pursuit of many species of migratory birds as game. It affords knowledge of actual routes of individual birds and concentration areas of species, and this knowledge can be applied to protect birds, especially because it reveals the facts on both the breeding and the wintering localities most frequented by certain species.

The Migratory Bird Treaty with Great Britain (acting for Canada), which was the result of efforts exerted during a period of several years preceding its ratification in 1916, is probably the most important conservation measure ever put in operation in this country. In the United States it is being carried into effect by the Migratory Bird Treaty Act of 1918 and the Migratory Bird Conservation (or Refuge) Act of 1929; and in Canada by the Migratory Birds Convention Act of 1917. The beneficent results that have come from this international agreement are too well known to require elaboration. Despite the fact that our force of game protectors is very limited, the regulations under the treaty act meet with a gratifying measure of approval, and in general State laws on the subject are formulated in accordance with the Federal regulations. It is needless to say that the arm of the Biological Survey will be strengthened in proportion as the Bureau is enabled to put into the field an adequate bird-protective force. Under the provisions of the treaty act, protective measures have been extended to practically all species of migratory birds. It authorizes the killing, within limits, of birds of species that at certain times and places become unduly destructive of products of agriculture or a

menace to other species. Doubt as to the wisdom of some of these permissive orders is sometimes expressed, but it is our practice to scrutinize carefully each application for permission to kill birds alleged to be destructive, and to grant such permits only upon convincing proof of their necessity. The same rule of procedure is followed in the formulation of seasons for the taking of migratory game birds.

The so-called Lacey Act, originally passed in 1900, added bird protection (particularly the protection of game birds) to the duties of the Survey, and included supervision of the importation of birds and mammals and regulation of interstate commerce in game. Administrative supervision by the Survey of the importation of foreign birds and mammals is an activity that has yielded results of great value. An example that has greatly benefited conservation efforts was the practical prevention of the importation of the mongoose. The experience of Jamaica and other countries where this destructive animal has gained a foothold indicates the dangers that we have thus far avoided by keeping this enemy of bird life out of continental United States.

Prohibition of the entry of plumage of wild birds was included in the Tariff Act of 1913, and was substantially strengthened by the Act of 1922. This stopped the introduction of Bird of Paradise and Heron aigrettes, formerly extensively used in millinery. The Tariff Act of 1930 in substance extends the principle of the Lacey Act to foreign countries by the inclusion of a provision to the effect that when a foreign country gives special protection to any species of bird or mammal, such species can not be imported into the United States without a certificate from the United States consul at the port of export that proper authority has been obtained for capture and shipment. Without this certificate the shipment is subject to seizure and disposal by the customs authorities.

The passage in 1929 of the Norbeck-Andresen Migratory Bird Refuge Bill, authorizing the establishment of numerous sanctuaries for migrant birds, presents great possibilities in the conservation of our wild fowl and some other species.

* Another Congressional authorization that promises results of fundamental and far-reaching value is the inauguration of work under the McSweeney-McNary Act, which provides for intensive

studies of birds and other forest fauna. In a forest community each inhabitant, whether animal or plant, has very definite relations to its environment and is interrelated in its activities with all other forest habitants. We now know in part some of these relations, but others in great numbers remain to be determined. Several investigators are now inaugurating these studies and the work will grow as added support is afforded.

The Biological Survey has in its possession a greater fund of information relative to the wild life of North America than has ever been gathered by any other agency. Much of it reflects conditions that have been greatly altered because of the many changes that began when this country was first settled by Europeans. These changes are exerting more and more influence on the wild creatures as the years go by. It is our goal, though one that is naturally impossible of perfect attainment, to keep our information current and abreast of present conditions. The data on birds in our files are placed freely at the disposal of students and are frequently utilized. Their influence is apparent in several of our State and regional lists of birds and in hundreds of articles in our ornithological serials. Thousands of persons have made use of our facilities for the identification of specimens, and our data have aided materially in the preparation of several works of wider scope, such as Bent's and Ridgway's monumental works.

The present-day civilization is making serious demands on the remaining stocks of wild life and their haunts, on the part of many classes interested in the pursuit of game birds or in activities that act as checks on their increase or are even detrimental to their welfare. To counteract these varied destructive factors we need all possible support from agencies interested in helping the bird or other creature to live. An influence that has exerted all too little force is the appeal of the bird itself. We are making an honest effort to learn what are the needs of the bird, and so to shape our course that so far as possible these needs shall be met.

Often we are met in our proposals to establish game refuges with the active opposition of hunters. Many sportsmen are for waterfowl refuges in the abstract, but when it comes to the placement of a sanctuary where it will take away from them the good hunting to which they have been accustomed they want it placed elsewhere.

There are many hundreds of gun clubs in existence throughout the United States where water and food are available to the birds that visit these club areas. Because these constitute perhaps the bulk of the areas available for feeding and resting places, the average hunter comes to the conclusion that there has been no diminution in the numbers of ducks. The picture thus reflected to him is limited and local, and he can not know the general situation throughout the North American Continent.

The situation in regard to waterfowl is disheartening indeed. Personal investigation and reports of observers throughout the United States, and from the prairie Provinces of Alberta, Saskatchewan, and Manitoba, Canada, point to the fact that there are fewer ducks this year than before. Further curtailment in hunting waterfowl is not a remote possibility. The responsibility of the Biological Survey to this resource is clear. If the ducks and geese need further safeguards thrown about them, and it is apparent that they do, we shall not hesitate to recommend such measures as may be found necessary to give them further protection. Our responsibility is not to human kind primarily, but to the myriads of migratory song, insectivorous, and game birds.

We have not hesitated to place restrictions on hunting when it was apparent that further measures were necessary to reduce the killing of our valuable birds, particularly the waterfowl. We have continued the protection given the shorebirds. We have reduced the take and seasonal limit on woodcock despite much opposition. As many of you are aware, the bag limit for ducks and geese has been reduced this year from 25 and 8 to 15 and 4 and a possession limit of two-days' bag prescribed.

You have a committee on bird protection, and we desire the counsel of this committee at all times. We shall deeply appreciate any aid that members of this committee may render in Congress or elsewhere when measures for the better protection of bird life are being considered. Whenever it comes to a matter of giving these migrant birds better and more adequate protection I promise you that the Biological Survey will not be found wanting. To give the bird the benefit of the doubt in all cases where there is difference of opinion is our desire and our plain duty. In these efforts I bespeak for the Biological Survey the continued support of the American Ornithologists' Union.

NOTES ON THE WINTER BIRDS OF CENTRAL ARKANSAS.

BY CHRESWELL J. HUNT.

PULASKI County is the centralmost county of Arkansas. The topography of the county is quite diversified. While a goodly portion of the area is given up to the city of Little Rock there are still many wooded sections in the northern part of the county and more or less bald cypress is to be found in the river bottoms of the southeastern portion. The Arkansas River enters the county at the northwestern corner and snakes its crooked way across the county finally making its exit at the southeastern corner. In the western part of the county lies an area of pine-clad hills where Pine Warblers and Kinglets were found in numbers while the eastern part of the county is mainly given up to cultivated fields where such species as the Prairie Horned Lark were found. The Arkansas River supplies many water bird records.

In Prairie and Arkansas Counties, lying to the east of Pulaski County, is located the state's great rice growing territory and it is here that vast numbers of wild ducks congregate for the winter. Here is to be found one of the greatest duck hunting sections of the United States.

The writer spent the winter of 1924-1925 in Little Rock and spent considerable time exploring the surrounding country. My field trips covered most of Pulaski County but as I also have numerous records for the surrounding counties it seems advisable to include these as I believe my list to be truly representative of the winter bird life of central Arkansas.

Unless otherwise stated the localities given are in Pulaski County, and the dates, unless otherwise noted, refer to the winter of 1924-1925, that is the months of December, 1924 and January, February and March of 1925.

Colymbus auritus. HORNEED GREBE.—One observed at Willow Beach on January 29.

Podilymbus podiceps. PIED-BILLED GREBE.—Single birds observed at different times in many localities.

Anhinga anhinga. WATER TURKEY.—One observed in the Arkansas River east of Little Rock on March 13.

Mergus americanus. AMERICAN MERGANSER.—A mounted male specimen was on display in the Bush-Caldwell Co. sporting goods store on Main Street, Little Rock. I was informed that this specimen was mounted by a Mr. Bale, a local taxidermist. I visited Mr. Bale and learned that the bird had been shot from a sand bar in the River near Little Rock early in January, 1925.

Lophodytes cucullatus. HOODED MERGANSER.—A mounted female specimen was on display in a Little Rock store window, that was said to have been taken "Some time in December."

Anas platyrhynchos. MALLARD.—Abundant in the rice fields of Prairie and Arkansas Counties all winter. Thousands are killed by gunners. A party of sportsmen would leave Little Rock about 2 o'clock A. M. and motor to the rice fields, arriving there about daybreak, spend a few hours duck hunting and return to Little Rock in the afternoon each with his bag limit of fifteen ducks and practically all of them Mallards.

Anas rubripes rubripes. RED-LEGGED BLACK DUCK.—On January 19 two Black Ducks, in the flesh, were shown me by Mr. Bale who had just received them to mount. I believe these birds were of the red-legged variety. They had been shot in the rice fields to the east of Little Rock.

Dafla acuta tzitzihua. PINTAIL.—A male of this species, taken near Dewitt, in Arkansas County, on January 17, was presented to my friend, Mr. Albert C. Galt, for dinner. This bird was in such excellent plumage that I preserved the skin which is now in my collection. Taxidermist Bale told me that this species is not common and that he had not mounted one in several years.

Nyroca affinis. LESSER SCAUP DUCK.—Four birds were observed at Willow Beach on January 29 and a flock of several hundred was seen on the River near Scott on February 10.

Ardea herodias herodias. GREAT BLUE HERON.—One observed at Willow Beach on January 29.

Fulica americana. COOT.—Several observed along the river on March 13.

Gallinago delicata. WILSON'S SNIFE.—Two birds observed east of Little Rock on March 14.

Oxyechus vociferus. KILLDEER.—Seen March 13, east of Little Rock.

Colinus virginianus virginianus. BOBWHITE.—Common in suitable localities. Three birds were taken by Mr. H. W. Mabbitt near Maumelle on January 31.

Zenaidura macroura carolinensis. MOURNING DOVE.—Common. Small flocks observed during January and February at various localities. While driving over the highways during March one would frequently flush Doves feeding in the road.

Cathartes aura septentrionalis. TURKEY VULTURE.—Fairly common.

Catharista urubu. BLACK VULTURE.—Occasionally seen. Not as common as the preceding species.

Circus hudsonius. MARSH HAWK.—One observed at North Little Rock on March 10.

Accipiter velox. SHARP-SHINNED HAWK.—One observed at Pulaski Heights on January 25.

Buteo borealis borealis. RED-TAILED HAWK.—Occasionally seen. I have in my collection an adult male that was taken near Russellville, Pope County, in December, 1925.

Buteo lineatus lineatus. RED-SHOULDERED HAWK.—Observed twice near Little Rock and many times in the adjoining counties.

Falco sparverius sparverius. SPARROW HAWK.—Observed near Little Rock on January 25, February 26, March 4 and March 20.

Tyto pratincola. BARN OWL.—I have a specimen that was sent me in the flesh which had been killed near Russellville, in Pope County, in December, 1925.

Strix varia varia. BARRED OWL.—Fairly common in the denser wooded sections.

Otus asio asio. SCREECH OWL.—Fairly common. I have a specimen taken near Russellville, Pope County in December, 1925.

Bubo virginianus virginianus. GREAT HORNED OWL.—Not uncommon in the wilder sections. I have a male specimen that was taken near Dewitt, Arkansas County, November 4, 1925 and a female specimen taken near Russellville, Pope County, in December, 1925.

Ceryle alcyon. BELTED KINGFISHER.—Frequently observed along the Arkansas River during February and March. I have a specimen in my collection that struck a wire at Main St. and Capitol Ave., Little Rock, May 18, 1925.

Dryobates villosus villosus. HAIRY WOODPECKER.—Observed January 30 at Maumelle and east of Little Rock on March 13.

Dryobates pubescens medianus. DOWNY WOODPECKER.—Common. Specimens taken at Marche', January 17, Willow Beach, January 29, and at Maumelle, January 30.

Sphyrapicus varius varius. YELLOW-BELLIED SAPSUCKER.—A specimen taken at Marche' on January 17. Observed at Pulaski Heights on February 25.

Phloeotomus pileatus pileatus. PILEATED WOODPECKER.—Still to be found in the wilder sections. I have a specimen that was taken near Russellville, Pope County, April 1, 1926.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.—Common. Observed in all localities visited.

Centurus carolinus. RED-BELLIED WOODPECKER.—Common everywhere. Specimens taken at Marche' January 17.

Colaptes auratus auratus. FLICKER.—Fairly common.

Chaetura pelagica. CHIMNEY SWIFT.—Arrived at Little Rock March 26, 1925 in great numbers. This species is of course not a winter bird.

Sayornis phoebe. PHOEBE.—Several noted. Observed January 30 at Maumelle and March 4 at Pulaski Heights.

Otocoris alpestris praticola. PRAIRIE HORNED LARK.—Three specimens taken from a flock of sixty at Scott on February 10.

Cyanocitta cristata cristata. BLUE JAY.—Common. A number remained about the city of Little Rock all winter.

Corvus brachyrhynchos brachyrhynchos. CROW.—Common.

Corvus ossifragus. FISH CROW.—Two of this species were observed along the Arkansas River west of Little Rock on March 7.

Agelaius phoeniceus phoeniceus. RED-WINGED BLACKBIRD.—Observed near Little Rock February 25, March 20 and March 7.

Sturnella magna subspecies (?). MEADOWLARK.—Common all winter in the fields east of Little Rock.

Euphagus carolinus. RUSTY BLACKBIRD.—Observed near Little Rock February 25 and March 13.

Quiscalus quiscula aeneus. BRONZED GRACKLE.—Common. Observed during February and March at numerous localities.

Astragalinus tristis tristis. GOLDFINCH.—Observed near Little Rock March 4, March 7 and March 13.

Passerculus sandwichensis savanna. SAVANNAH SPARROW.—One collected near Scott on February 10.

Passerherbulus henslowi occidentalis. WESTERN HENSLOW'S SPARROW.—One observed near Little Rock on March 7.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—Common. Specimens collected January 30 and March 7.

Spizella pusilla pusilla. FIELD SPARROW.—A few observed. Heard singing at Maumelle on February 25.

Junco hyemalis hyemalis. SLATE-COLORED JUNCO.—Common about Little Rock all winter.

Melospiza melodia melodia. SONG SPARROW.—Observed January 31 and March 7 west of Little Rock and February 10 and March 13 east of the City.

Melospiza georgiana. SWAMP SPARROW.—Specimen collected March 7 at Pulaski Heights.

Passerella iliaca iliaca. FOX SPARROW.—Occasionally seen. Several singing near Maumelle on March 7.

Pipilo erythrophthalmus erythrophthalmus. TOWHEE.—Fairly common. Specimen taken at Maumelle on February 25.

Cardinalis cardinalis cardinalis. CARDINAL.—Very common. Specimen collected at Maumelle February 25.

Progne subis subis. PURPLE MARTIN.—Arrived at Little Rock March 20, 1925. This was a spring migrant and not a winter bird.

Bombycilla cedrorum. CEDAR WAXWING.—Small flocks occasionally seen. Two specimens taken near Maumelle, January 31.

Lanius ludovicianus migrans. MIGRANT SHRIKE.—Common. Two specimens collected at North Little Rock on January 29.

Dendroica coronata. MYRTLE WARBLER.—A small flock observed

at Maumelle, January 30 and specimens collected at Scotts, February 10 and at Pulaski Heights, March 7.

***Dendroica vigorsi*.** PINE WARBLER.—Specimens collected at Pulaski Heights on February 26, March 4 and March 7.

***Mimus polyglottos polyglottos*.** MOCKINGBIRD.—Common about Little Rock. Specimen taken near Maumelle February 25.

***Toxostoma rufum*.** BROWN THRASHER.—Observed January 29 at Willow Beach.

***Thryothorus ludovicianus ludovicianus*.** CAROLINA WREN.—Observed January 25 at Pulaski Heights, January 30 at Maumelle, February 10 at Scott and February 25 at Maumelle.

***Thryomanes bewicki bewicki*.** BEWICK'S WREN.—Observed February 26 and March 4 at Pulaski Heights. One heard singing in a yard in Little Rock on March 13.

***Certhia familiaris americana*.** BROWN CREEPER.—Observed near Little Rock January 29 and February 25. Specimen collected at Willow Beach on February 10.

***Sitta carolinensis carolinensis*.** WHITE-BREADED NUTHATCH.—Fairly common. Specimens collected at Maumelle, January 31 and at Pulaski Heights March 7.

***Baeolophus bicolor*.** TUFTED TITMOUSE.—Common. Specimens collected at Maumelle on January 31 and at Willow Beach on February 25.

***Penthestes carolinensis carolinensis*.** CAROLINA CHICKADEE.—Abundant. Specimens collected at Pulaski Heights on February 26 and March 7.

***Regulus satrapa satrapa*.** GOLDEN-CROWNED KINGLET.—Observed January 25, January 29 and March 4 and specimens collected on February 26 and March 7 at Pulaski Heights.

***Regulus calendula calendula*.** RUBY-CROWNED KINGLET.—Observed January 31 at Maumelle and February 10 near Scott. Specimen taken March 7 at Pulaski Heights.

***Hylocichla guttata pallasi*.** HERMIT THRUSH.—Several noted. Specimens taken January 31 near Maumelle.

***Planesticus migratorius migratorius*.** ROBIN.—Common in flocks all winter about Little Rock. Specimen taken at Pulaski Heights March 4.

***Sialia sialis sialis*.** BLUEBIRD.—Common around Little Rock all winter. Specimen collected near Maumelle on January 30.

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FURTHER NOTES ON THE BIRDS OF THE
MAGDALENE ISLANDS.

BY REV. C. J. YOUNG.

My first trip to the Magdalene Islands was made in June, 1897; I again made a visit in the spring of 1927; thirty years having elapsed in the interval. Arriving at Pictou, N. S., on the 19th of May, I found communication to the Islands hindered by the accumulation of ice in the Gulf, owing to the lateness of the spring this year, and prevailing N. E. winds. On her first trip in April the Steamer *Lovatt* encountered so much ice that she took five days to reach Grindstone Is. and was compelled to make the passage by the west end of Prince Edward Island. On her second trip she encountered much ice, but managed to get through; the third passage on May 23, after a delay at Pictou of four days, was normal, though a considerable amount of ice was still drifting about at the east end of Prince Edward Island.

We landed at Grindstone Island on May 24, and through the courtesy of the Leslie Packing Co., were able to reach Grosse Isle,—my destination,—in the afternoon of the following day, May 25. There I stayed five weeks, spending three days on Bryon Island, but unable to visit the Bird Rock on account of the uncertain and squally weather.

In the interval of thirty years, I found a great change had come over the islands; roads had been made where none previously existed; new canning factories were in operation; a large fish-curing business was carried on at Grindstone Is.; telephone and radio stations were working. Much of the spruce and fir had been cut down and the land cleared; and on Grindstone especially new buildings, and an increased population numbering over 2000, was in evidence. So conditions were not as favourable for bird life as formerly, though some species were still fairly abundant in places.

The Magdalene Islands have in the past been a great resort and breeding ground for a number of our migratory birds, and some species have been met with there that are not known to breed in the same latitude elsewhere in Canada. Consequently there has been

a desire on the part of ornithologists to investigate bird life here. In the year 1878 Charles B. Cory of Boston, Mass., visited the Islands, one of the first to do so, arriving on the 17th July. He went primarily for sport, and recalls that he and his party during the week ending August 20, shot: 6 Godwits, 64 Yellow-legs, 6 Teal, 9 Snipe, 57 Sandpipers, 7 Curlew, 74 Plover, 21 Turnstones and 4 Ducks: a total of 250 birds. There was little bird protection in those days, and bird matters were looked at from a different viewpoint to that which prevails now. In 1881 the late William Brewster made a trip to the Magdalenes and investigated the breeding habits of many species; a few years later A. C. Bent visited the Islands; and later myself, Dr. Bishop, Rev. H. K. Job, J. M. Phillips, E. Beaupre of Kingston, Ont., and others, have been there for the same purpose. The list I have made during my two visits is probably the most complete, and may be taken as a fairly accurate résumé of the birds breeding there; a number of additions to cover the birds passing in the 'fall' and spring migrations may be added, taken from Mr. C. B. Cory's list; but of these I have no actual knowledge. I found that at the present time (1927) bird collecting is badly commercialized; a stranger on arrival is presently interviewed by boys and even girls as to what he will pay for such and such nests; the Least Sandpiper (peep); the Rusty Blackbird, Wilson's Snipe and others being especially in evidence. The result of this, continued for a few seasons past, is that the Sandpipers, common breeders formerly, have become scarce; as too the Semi-palmated Plover, the Fox Sparrow and others. This is partly owing, of course, to clearing of the land, and increased cultivation, but more especially to the excessive egg collecting carried on—nominally for scientific purposes, but more often for purely mercenary ends.

Wilson's Snipe is a somewhat early breeder; in Ontario I have seen fresh eggs on May 15; here I was informed of two nests each with four eggs on the 25th. If the first nest is disturbed, the bird soon makes another nest not far from the first;—in about two weeks, and again lays four eggs. I am not sure whether this is repeated a third time, but think it is. The nest is frequently in a dry place at the edge of the marsh, but not far from water. These birds are very numerous, and their peculiar breeding sounds can

be heard any evening during May and June, and at intervals all night: I have seen them alight on a spruce tree.

On May 28 there were still deep snow drifts among the stunted spruce, as much as two or three feet in places; the weather continued cold and several nights were frosty. Vegetation had scarcely started, and there was no sign of growth anywhere. The Horned Lark has become very common; there are the two forms;—the Horned Lark (*Otocoris alpestris*) and the sub-species (*praticola*). They can be readily identified, the former being the commoner and considerably larger. It breeds later, and frequents the sand beach or neighbouring 'flats,' whilst '*praticola*' appears to resort to the grassy fields and hill-sides.¹ I plainly distinguished both species. On May 28 near the house on Grosse Isle where I stayed, some boys showed me a nest on a grassy hill-side which contained three eggs. They were highly incubated and almost ready to hatch; later, on June 8, I found a nest with three fresh eggs among the sand dunes at East Point. There was no mistaking the latter bird, as the true '*alpestris*.' It was quite tame and approached within a few feet. I was informed that these birds had become numerous, but had nested only within the last ten years. They are all over the Islands, being especially plentiful at Grosse Isle, where several pairs had nests close to houses. I did not observe them during my former visit in 1897, so they were not included in my list. Another bird I met with was the Acadian Sharp-tailed Sparrow; finding two nests; one near the 'lagoon' on the 16th; the other on June 20 in exactly similar situations, along the sand beach south of Grosse Isle. The birds fluttered from the nests at my feet, but so well were the nests concealed in a growth of dwarf juniper and cranberry vines that it took some time to locate them. They are very elusive, and after leaving the nest could nowhere be seen. Lincoln's Sparrow was by no means uncommon, several pairs were breeding in the marsh at Grosse Isle. I did not observe the Song Sparrow there, but found a nest with young on Grindstone Island on July 6. It is by no means as common as either the Swamp or Lincoln's; the former is the most abundant of the Sparrows with the exception of the Savannah, which is everywhere, but more particularly on the grassy hills and hay meadows. In 1887 the Fox Sparrow was

¹ There would seem to be an error as to *both* forms nesting. From the nature of the case two subspecies *cannot* nest together.—Ed.

quite plentiful, and I heard and saw it repeatedly and found several nests in the spruce trees; in 1927 I seldom heard it and saw very few, finding only one nest also in a spruce tree, which on June 16 contained young just ready to fly. The Sparrows are an interesting study; I believe the Acadian Sharp-tailed to be not uncommon among the sand dunes and around the Lagoon. I noticed several there. The Tree Sparrow is occasionally seen, as too the White-throated, and the Pipit, but these are rare after the migration northward in May. The Least Sandpiper (or peep) still breeds, but only a few nests are now met with; these also lay three times, if disturbed. I found a nest near the canning factory at Grosse Isle on June 15 which contained two eggs. It was at the edge of the marsh on a sandy ridge where a few stunted spruce grew, some little distance from the sea shore. A few Semi-palmated and Piping Plovers still breed about Grosse Isle and along the shores of the 'Lagoon' towards Grand Entry, but in much reduced numbers. The Black-poll Warbler is common; they do not lay until the last week in June, invariably making their nests in the stunted spruce two or three feet from the ground. I saw several nests, the last with four fresh eggs on June 30; in each case feathers were plentifully used in the lining. The Yellow Warbler was also common; the nests here are lined with last year's cat-tail down; outside of these, with the exception of the Red-start, the Warblers were not numerous. I saw again a Golden-winged¹ and several others on May 30 and 31, but they appeared to be migrating with the Myrtle and Magnolia Warblers and not yet to be breeding, as I did not see any of them later. The Rusty Blackbirds still breed in some numbers: they select a thick scrubby spruce, always near a pond or swamp. On May 30 I found a nest with five eggs. This was late for them, as most have hatched by that date. The Bronzed Grackle is now quite common on the Islands: in 1897 I did not see any, but now they are everywhere, and destroy many Warblers' and Sparrows' nests. It is only within the last ten years, residents told me, that they had been observed. Another bird I noticed at Bryon Island was the Meadowlark: it was observed there by E. Beaupre in 1926 as well, and a pair or two breed on the grassy hills.

¹ I am certain of my identification of this bird both in 1897 and 1927. It was also seen by E. Beaupre on Bryon Isle in 1926.

In 1897 none of the Gulls were breeding on the Magdalenes, except a few Kittiwakes at Bird Rocks: now there is a great colony of Herring Gulls at Seal Island in the Lagoon. It is the largest colony I have ever seen, and there must be two or three hundred pairs. The Island contains eighty acres, mostly covered with stunted spruce, and there is but little clearance. The Gulls have their nests on the ground, some under branches of the trees, a number on the tops of the spruces, where the branches are matted together by the prevalent winds. Along with them are some Red-breasted Mergansers and possibly an occasional Black Duck.

A trip to East Point is a very interesting day's outing. It is here among the sand ridges that one meets with the ponds of fresh water, that in the past, have been such bird resorts. On June 8 and 13 I made this trip.

We went in a cart from Grosse Isle across the sands at low tide to East Cape, thence over the sand ridges and swamps to East Point,—a distance of about eight miles. It is a rough journey, but well worth the trouble. At the head of the largest fresh water ponds are the 'Egg Nobbles.' Here a colony of common terns are breeding. On June 8 none of the nests contained more than one egg; very few had begun to lay; but by the 13th most of the nests had a full complement of two or three eggs. The 'Nobbles' are little sandy islets, covered with grass and weeds surrounded by mud and water from three to five feet in depth. The colony seemed to consist entirely of common Terns; a few Arctic Terns which are not numerous seemed to prefer the dry sandy beaches, where shells and stones were plentiful. On one of the little 'islets' I found a nest of the Great Black-backed Gull with three eggs; on adjoining islets the Terns had their nests. This is, I believe, the first Black-backed Gull's nest ever found on the Magdalene Islands, so I took photographs of it. It was difficult to do so, for we could only find an old leaky boat. Near by on another of the 'islets' or 'nobbles' was a Black Duck's nest with nine eggs, almost ready to hatch, which we were careful not to disturb. It was near by on the shore that I found the Horned Lark's nest on June 8 above referred to. On that date I first noticed the Black-backed Gulls, and by their actions felt sure they had a nest. The Greater Scaup Duck bred here in 1897, but I did not see any on this occasion and fear they

are no longer there to breed. In the smaller ponds the Sora Rail is quite common and breeds; and there are still a few pairs of Horned Grebes.

I must not forget to mention the Snowy Owl. It is quite plentiful on some of the Islands; on Grosse Isle and towards Grand Entry. These birds are of great service by feeding on the numerous mice, which abound. They probably are attracted by such food; having once gained a foot-hold; and this last season (1927) have been particularly plentiful; on June 8 at East Point we saw five; another day three, and several times one and two both there and towards Grand Entry. A nest is said to have been found with nine eggs, but this is doubtful. In concluding I may say, that Leach's Petrel no longer breeds on Bryon Island; formerly it did; I obtained three nests. This year I looked for it, but could see no sign of a nest, and understood they had not nested for several years.

In my former list of birds (vide *Ottawa Naturalist*, vol. XI, No. 8) I mention 61 species, mostly breeding; I would omit two of these, the Screech Owl, and the Cliff Swallow, and in their place insert Richardson's Owl and the Barn Swallow. To this list (1897) therefore, I now would add fourteen species:—

62. The Nashville Warbler. One seen.
63. Myrtle Warbler. Rare breeder on Bryon Is.
64. Magnolia Warbler. Rare, may breed.
65. Meadow Lark. On Bryon Island.
66. Acadian Sharp-tailed Sparrow. Breeds on Grosse Isle.
67. Pipit. Rare breeder on Grosse Isle.
68. Lesser Yellow-legs. Common migrant.
69. Kingbird. Two pairs; breeds.
70. Tree Swallow. Breeds.
71. (a. Horned Lark. Common, breeds late in June and July.
(b. Prairie Horned Lark. A few.
72. Snowy Owl. Seen in May and June.
73. Brunich's Guillemot. The commonest species at Bird Rocks.
74. Bronzed Grackle. Common; breeds.

A total of 75 species, identified by myself. Besides forty-one migrating species shot by C. B. Cory in 1878, and listed by him, which bring the Magdalen Island list to 115.

SUMMARY OF BIRD NOTES FROM PINELLAS
COUNTY, FLORIDA.

BY PHILIP A. DU MONT.

As the east coast of Florida continues to be developed by real estate interests with extensive building and the subsequent destruction of many suitable breeding grounds for birds, increasing interest is being centered on the bird life of the west coast of the state. This region has long been a rich field for study and already several papers have been published on observations made there.

The purpose of this paper is two-fold: first, to summarize the recently¹ published notes as they relate to Pinellas County and second, to record observations made by me in Pinellas County during a residence at Dunedin, from January 15 to May 3, 1929.

Mr. William G. Fargo made an extensive study of this section during the winters of 1923-24-25-26 from January to April or May of each year, principally around Pass-a-Grille but including both Pinellas and Pasco Counties. Mr. Fargo (1926) in his article "Notes on Birds of Pinellas and Pasco Counties, Florida," gives a complete description of the topography of this section and lists 184 species with annotations. Five of these species (Cabot's Tern, Great Horned Owl, Painted Bunting, Whip-poor-will and Brown-headed Nuthatch) are credited to Bent, and the Yellow Palm Warbler is included on the records of Scott (1890). The Florida Grackle is listed as locally common throughout the state but not observed in Pinellas County. Apparently the Scott's Seaside Sparrow and Grasshopper Sparrow are recorded in the list only for Pasco County, but this is not definitely stated.

¹ Of the earlier published writings the papers by Mr. W. E. D. Scott must be carefully considered by anyone undertaking to publish a catalogue of the birds of Pinellas County. Under the title "A Summary of Observations on the Birds of the Gulf Coast of Florida" (*The Auk*, Vol. V, 1888, pp. 373-379; Vol. VI, 1889, pp. 13-18, 152-160, 245-252, 318-326; Vol. VII, 1890, pp. 14-22, 114-120). Mr. Scott records 262 species of birds observed or collected between Cedar Keys and Key West, on the Gulf Coast. This list, which was recorded during the winter of 1879-80 and practically all the time between the spring of 1886 to August 1, 1888, contains 213 species of birds observed within Pinellas County (then Hillsboro County). Twenty-seven species of this total are neither recorded in any of the recent lists nor included in my notes below.

Additional notes by Mr. Fargo (1928) under the same title, cover the first half of 1927. Three species are added (Oyster-catcher, Pigeon Hawk and Nelson's Sparrow) to his list of 181 originally credited to Pinellas County, and the Blue-winged Teal is recorded for Pasco County. Notes on six others are included of which three (Cabot's Tern, Yellow Palm Warbler and Brown-headed Nuthatch) had previously been included, based upon the observations of others, but had since been seen by Fargo. A Pinellas County record for the Scott's Seaside Sparrow is given. Mr. Fargo (1928) records the capture of a Southern Robin on March 5, 1928, at Pass-a-Grille. Therefore the published lists of birds from Pinellas County by Mr. Fargo up to and including 1928 contain a total of 186 species.

Messrs. A. C. Bent and Manton Copeland (1927) give their observations on birds seen in Pinellas County from November 10 to April 30, 1924-25. This paper "Notes on Florida Birds" contains 165 species of which fifteen do not relate to this county and twelve are based on observations of Fargo. Besides the five species referred to in Fargo's paper above, five others contained in this list were not recorded by Fargo. These are: Common Tern, Cory's Least Bittern, King Rail, Florida Sparrow Hawk and Florida Nighthawk. The Florida Grackle is included without any definite county record, and different sub-specific forms are given for the Crow and Chickadee than Fargo recognized in his papers. Discussion of these is included in my notes below.

Mr. Clifford H. Pangburn (1919) records 135 species of birds observed within Pinellas County between January 22 and April 29, 1918. Description of the country adjacent to St. Petersburg is given and twenty species are included in this list which were not recorded by Fargo or Bent and Copeland. These are: Red-throated Loon, Franklin's Gull, American Merganser, Mallard, Gadwall, Blue-winged Teal, Canvas-back, Greater Scaup, Ruddy Duck, Zenaida Dove, Chimney Swift, Henslow's Sparrow, Florida Grackle, Rose-breasted Grosbeak, Scarlet Tanager, Bank Swallow, Blue-headed Vireo, Orange-crowned Warbler, Ovenbird and Pipit. Mr. Pangburn classed all Willets he observed as *C. s. inornatus*, the Dowitchers were all recorded as *M. g. scolopaceus* and the Palm Warblers were called *D. p. hypochrysea*, all quite improbable conclusions.

During the three and a half months that I lived in Dunedin I observed a total of 158 species of birds. Of these, eight have not been recorded in any recent Pinellas County notes and are indicated in the text with an asterisk. Observations of interest or affecting the status of several others are included.

The total list of birds, therefore, recently recorded from Pinellas County is 217. (Fargo, 186; Bent and Copeland, 5; Pangburn, 20, and Du Mont, 8.) With the 27 species of Scott (see foot-note) the total recorded for all time is 246.

Colymbus auritus. HORNED GREBE.—Common winter resident. A flock of thirty-two seen on Tampa Bay, February 18. A few of these birds observed regularly on Oldsmar Bay until April 22. Three of the flock of eight seen on that date were in full breeding plumage.

Larus philadelphia. BONAPARTE'S GULL.—Observed from several points around Tampa Bay from January 16 to March 16. Maximum of twelve seen on the latter date. Bent and Copeland classed this Gull as rare on the west coast.

Hydroprogne caspia imperator. CASPIAN TERN.—Fairly common winter resident. A few of these birds were to be found regularly with the flocks of Royal Terns observed along the Clearwater Beach causeway. Flocks of twenty-six on January 24, and thirty on March 3, were seen at Pass-a-Grille on Boca Ciega Bay; fourteen were noted five miles south of Safety Harbor on Old Tampa Bay, March 24, and my latest date is of a single bird at Pass-a-Grille, April 21. This would seem to indicate a decided increase of this species when compared to the occurrences of it in 1924 as recorded by Bent and Copeland, and in 1926 by Fargo.

Sterna forsteri. FORSTER'S TERN.—A common winter resident. This species was recorded on twenty-seven field trips between January 16 and May 3. Large flocks were observed as follows: February 2, twenty-seven, Old Tampa Bay, south of Safety Harbor; February 5, twenty-three, at the same locality; February 23, forty, Oldsmar Bay, near Safety Harbor Bridge, and April 20, twelve, at the same place.

Sterna hirundo. COMMON TERN.—One bird observed on three successive days at Clearwater Beach, January 25 to 27. Fargo did not record this species and it apparently is an uncommon or irregular migrant on this coast.

***Sterna dougalli.** ROSEATE TERN.—A single bird observed among a flock of terns at Dunedin Isles, May 2. The longer outer tail feathers, generally whiter tone of the plumage and the distinguishing flight were noted.

Guara alba. WHITE IBIS.—On April 27, I visited the Holmes Pond rookery (which is two and one half miles south-east of Dunedin on State Highway No. 34) and found at least two hundred and twenty-five White Ibises. Bent and Copeland estimated the colony contained sixty-seventy-

five pairs in 1925 and Fargo recorded the number as fifty pairs in 1926. Fargo also refers to a large colony south of Tarpon Springs. This rookery, two miles south of the town, is locally known as Floating Island. The boggy nesting area is about two acres in extent. On April 21, I estimated the number of White Ibises to be one thousand but judging from the abundance of nests this estimate is undoubtedly low. In addition I found as many as thirty-two species of birds on and around the island including Ward's Heron, Little Blue Heron, Snowy Egret, American Egret, Louisiana Heron, Green Heron, Black-crowned Night Heron, American Bittern, Least Bittern, Florida Cormorant and Anhinga. The protection given these birds, nesting as they do on a practically unapproachable floating island together with the attitude of the people in considering it a sanctuary are, no doubt, the factors responsible for the rapid increase of all species.

Mycteria americana. WOOD IBIS.—On April 22, a flock of twenty-eight was seen flying over the Memorial Highway east of Tampa Shores (Oldsmar). They alighted in a cypress swamp about a half mile north and two miles east of the town. Fifteen Wood Ibises seen three days later, April 25, at a little cypress clump one and one quarter miles west and south of the Safety Harbor Bridge, must have been part of the same flock. In a letter written to me on May 20, Mr. J. D. Posten of Dunedin said that the Wood Ibises were evidently nesting four miles east of Dunedin as he had seen them there on several occasions during the month of May.

Egretta thula thula. SNOWY EGRET.—Rather numerous resident. A few of these birds were seen on almost every field trip and large flocks were noted as follows: February 23, seventeen feeding in Stevenson's Creek (at low tide). This creek is about half-way between Clearwater and Dunedin and the birds were all within 150 yards of the highway; February 25, a flock of twenty-five around an artesian well, six miles east of Tampa Shores and not over fifty feet from the Memorial Highway. This and the next two records, which refer to the same place, are in Hillsborough County; February 26, thirty-five (by count), at the artesian well, and March 11, a flock of twenty-five.

Rallus elegans elegans. KING RAIL.—One observed at Floating Island, January 19; two in a fresh water pond one mile south of Wall Springs, March 3; one at the same place, March 24, and two again on April 21. Not recorded by Fargo.

Porzana carolina. SORA.—One seen in the same marsh where the King Rail was observed—south of Wall Springs, January 19, and another at Floating Island on April 21.

Ionornis martinicus. PURPLE GALLINULE.—Four seen, April 21, at Floating Island, south of Tarpon Springs and three at Holmes Pond on April 27. This species was not listed by either Fargo or Pangburn.

Phaeopus hudsonicus. HUDSONIAN CURLEW.—A pair of Curlews was observed along the causeway to Clearwater Beach, April 24. It was low tide and the birds were probing in holes in the sand for fiddler crabs. Each time that a crab was found it was taken to a nearby pool of water and

very carefully rinsed before being eaten. Three of these birds were seen at the same place on April 26 and 27. It is interesting to note that Scott (1889) recorded only the Long-billed Curlew (*Numenius a. americanus*).

***Colinus virginianus floridanus*.** FLORIDA BOB-WHITE.—This was a common resident and I found it to be equally as numerous in the residential sections as in the surrounding wood-lands—no doubt the result of permanent protection in the county. A flock of seven birds fed in our yard almost daily.

****Elanoides forficatus forficatus*.** SWALLOW-TAILED KITE.—On April 6 one of these Kites was seen flying or rather sailing at a great height over the town of Dunedin. Forbush (1927) refers to this habit of soaring but it was the first time I had seen such a performance. The white under-parts, long forked tail and cut-back appearance of the wings were easily made out with binoculars.

***Buteo borealis umbrinus*.** FLORIDA RED-TAILED HAWK.—Probably all of the previous records for the Red-tailed Hawk from this section are referable to this subspecies. It is a fairly common resident and all that I saw appeared to be intermediate between *borealis* and *harlani*. A very dark female observed on January 22, four miles east of Ozona, seemed dark enough to be *harlani*. In regard to the status of the latter race in Florida Harry C. Oberholser wrote me on February 9, as follows: "Apparently, all the records of the Harlan Hawk (*Buteo b. harlani*), for western Florida are really mis-identifications for the Florida Red-tailed Hawk (*Buteo borealis umbrinus*) as the latter, in general color, particularly in life, much resembles the bird known as the Harlan Hawk."

***Falco columbarius columbarius*.** PIGEON HAWK.—A male seen near a small cypress swamp, six miles east of Dunedin on April 30. This species was included by Fargo in his second paper but not recorded by Pangburn, Bent and Copeland or Scott (1889).

***Falco sparverius*.** SPARROW HAWK.—I agree with Bent and Copeland that *sparverius* is a common winter resident migrating by the first of April and that *paulus* is the resident breeding form. Fargo listed only *sparverius* and stated that *paulus* was not taken although several smaller, darker birds were collected. All of the Sparrow Hawks that I saw during the latter half of April seemed to have shorter wings and tail. No doubt more collecting is needed to determine its true status in the county.

****Crotophaga ani*.** ANI.—A single bird observed on January 24, 26 and February 17 among the mangroves surrounding a small pond at Pass-a-Grille, directly east of the Don Ce-sar Hotel. See Du Mont (1929). This bird was collected by Fargo (1929) on February 25, 1929.

***Melanerpes erythrocephalus erythrocephalus*.** RED-HEADED WOODPECKER.—Very common—the most abundant woodpecker. Observed on practically every field trip and a maximum of thirty seen on March 3 between Tarpon Springs and Pass-a-Grille. The fact that Scott (1890) did not have any Pinellas County records and that Pangburn saw only two of these birds during three months shows the variability of this species.

Chordeiles minor minor. NIGHTHAWK.—One picked up on the Dunedin-Tampa Road, which had been hit by an auto, April 29. The largest wave of Nighthawks was between April 17 and 20, and a few migrants were noted after that date but in reduced numbers. Fargo states that it was seldom seen in Pinellas County. He does not record *chapmani*. Bent and Copeland refer all of their observations to *chapmani* as does Pangburn.

Chordeiles minor chapmani. FLORIDA NIGHTHAWK.—A moderately common summer resident. One taken April 7. Others seen before April (the date when the flight of *minor* started) probably all belonged to this subspecies. The theory that the local breeding birds arrive in a locality several days in advance of the migrants which breed farther north seems to be proven in this case.

Chaetura pelagica. CHIMNEY SWIFT.—Fairly common summer resident. First noted at Dunedin, March 25, and from six to twelve birds were observed daily flying overhead. Common in Tampa. Pangburn considered this bird abundant in 1918. It would seem, then, that this species was omitted in the lists of Fargo, Bent and Copeland through a mistake rather than lack of observations. It seems unlikely that such a species would have been entirely absent during the past few years.

Tyrannus dominicensis dominicensis. GRAY KINGBIRD.—Fairly common summer resident. Seven birds were seen at Wall Springs, April 21. The movement of these Kingbirds up the gulf coast appeared to be rather slow and scattered, not at all like the warbler waves. Only one pair noted in Sarasota County, fifty-two miles south of Wall Springs on April 20; by the 28th they were so numerous that I was able to count twenty-six while driving over a six mile stretch of road along the shore between Sarasota and Bradenton.

Aphelocoma cyanea. FLORIDA JAY.—A pair observed near Indian Rocks on January 18. Single birds were seen on March 8 and 31, along the Dunedin-Tampa Road near Tampa Shores. In Pasco County a small number of these Jays were found at Port Richey.

Corvus brachyrhynchos pascuus. FLORIDA CROW.—Uncommon resident. Increasingly numerous toward the interior of the state. Fargo listed this species as *C. b. brachyrhynchos*, while Bent and Copeland, in their paper, follow the 'A. O. U. Check-List' in recognizing the Florida subspecies *C. b. pascuus*. Scott (1890) listed the Crow as *floridanus* (= *pascuus*), and Pangburn, although failing to find this bird, said that it would seem that *C. b. pascuus* must occur in the county. Owing to the fact that all of these records are from central Florida, well within the range of *pascuus*, I believe they should be referred to this subspecies.

Agelaius phoeniceus phoeniceus. EASTERN RED-WINGED BLACK-BIRD.—A common winter resident leaving for the north by the middle of March. A flock of about two hundred and fifty was fed daily on Shearer's Island and a few of these remained until the first week in April. Specimens which I collected in January were compared with the measurements and

descriptions given by Messrs. Howell and van Rossem (1928) in their Study of the Red-winged Blackbirds of the Southeastern United States. In following the classification given in their paper, *predatorius* of Fargo is equivalent to *phoeniceus*, as now revived for the Eastern Red-wing.

***Agelaius phoeniceus mearnsi*.** FLORIDA RED-WINGED BLACKBIRD.—A few are permanent residents. The bulk of the breeding birds winter farther south and arrive in Pinellas County about the middle of April. I found this species abundant in Collier County in January. The records of *A. p. floridanus* of Pangburn, Bent and Copeland, and *A. p. phoeniceus* of Fargo, must now be referred to *A. p. mearnsi*, the subspecies from central Florida recently described by Howell and van Rossem. The song of this bird seems to differ consistently from that of the eastern bird. An extra descending note is added at the end which makes the song of the Florida bird *conk-a-ree-a*. This was called to my attention first by the late Maunsell S. Crosby.

***Euphagus carolinus*.** RUSTY BLACKBIRD.—Three of these birds seen in a cypress swamp southwest of Safety Harbor Bridge, January 19.

***Quiscalus quiscula quiscula*.** FLORIDA GRACKLE.—A common resident in several localities within Pinellas County. This bird was observed almost daily in our yard in Dunedin and its numbers remained rather constant. The Florida Grackle is listed by Fargo but no record given for Pinellas County. Messrs. Bent and Copeland recorded it as "a decidedly local resident and not very common—seen in a few inland towns in small numbers." Pangburn found it to be a common bird about the lawns of St. Petersburg.

****Ammodramus savannarum australis*.** GRASSHOPPER SPARROW.—One male collected near the Dunedin Isles Golf Club, January 25; another seen near the same place, February 7; three observed among the flocks of sparrows staying in a field two miles southeast of Ozona, March 3, and two seen there again on March 24.

***Passerherbulus maritimus peninsulae*.** SCOTT'S SEASIDE SPARROW.—Three of these birds were observed at Wall Springs (three miles south of Tarpon Springs, the type locality), January 19. Fargo (1928) collected two of these sparrows at Indian Pass, twenty miles south, one on January 24 and one on the 29th. This, according to Fargo, is the first time this bird has been collected south of the type locality. Griscom and Nichols (1920) in their Revision of the Seaside Sparrows record no January specimens of *peninsulae*, but the fact that they examined specimens which had been collected during six different months of the year proves that the birds are permanent residents.

****Zonotrichia albicollis*.** WHITE-THROATED SPARROW.—One seen on Shearer's Island, March 24. (This island, shown on the maps as Hog Island, is about four miles long and is located across the bay west from Dunedin Isles. Due to constant protection given all wild-life on the island by Mr. Shearer, its owner and only inhabitant, birds have been found to concentrate on it during the winter months.)

Spizella pusilla pusilla. FIELD SPARROW.—Two birds found among a flock of sparrows in a field two miles south-east of Ozona, February 17. Besides this species there were Savannah, Vesper, Grasshopper, Pine-woods, and Swamp Sparrows all seen more or less regularly there during February and March. The pair of Field Sparrows was again seen on March 3. Not recorded by Bent and Copeland.

Pipilo e. erythrophthalmus. TOWHEE.—Both *erythrophthalmus* and *alleni* were found commonly all winter and with a little practice the two subspecies could be distinguished by their notes. On April 7 there was quite a pronounced flight of *erythrophthalmus* and a scattered flock of twenty-eight was seen near New Port Richey, Pasco County.

****Guiraca caerulea caerulea.*** BLUE GROSBEEK.—A pair found on April 21 at the same place that the Ani had been found—Pass-a-Grille, east of the Don Ce-sar Hotel.

Bombycilla cedrorum. CEDAR WAXWING.—Four birds seen in a live-oak tree in Dunedin, February 23; three in the same locality on February 28; a flock of thirty-five seen, April 15, flying over MacFarlane Park in West Tampa, Hillsborough County, and eight flying over the grounds of the West Tampa Junior High School, April 30.

****Vireosylva gilva gilva.*** WARBLING VIREO.—Three birds seen under favorable conditions, April 18. These Vireos were feeding in the trees of our yard in Dunedin and evidently were migrating with a large wave of Warblers.

****Lanivireo flavifrons.*** YELLOW-THROATED VIREO.—A single bird observed in Clearwater, near Stevenson's Creek, on March 17.

Lanivireo solitarius solitarius. BLUE-HEADED VIREO.—One collected at Dunedin Isles on February 7, was referable to this subspecies. Single birds were seen in our yard at Dunedin on January 19 and March 23. A Vireo observed near Coachman on March 17 may have been *L. s. alticola* because it seemed darker on the head and back. Pangburn records two observations of the Blue-headed Vireo in 1918. Fargo found *alticola* on one occasion but neither he nor Bent and Copeland observed *solitarius*.

Vireo griseus griseus. WHITE-EYED VIREO.—One observed west of Lake Butler, February 17. Fargo states that this bird appears late in March or early April. I also found this species in Collier County during January and in Polk County on March 2.

Vermivora celata celata. ORANGE-CROWNED WARBLER.—Two found along with some other wintering warblers three and a half miles east of Ozona on January 19. One was feeding in a live-oak tree across from the Library in Clearwater, February 4. Because of the difficulty in identifying this species in the field it can easily be overlooked. The field characteristic which I find most helpful in identifying this bird is the *chip* given while feeding. In my experience the eye-ring and faint streaks on the breast have been of very poor aid as compared to the small size, greenish-yellow of the rump and the chipping note referred to above. This species was not recorded by Fargo or Bent and Copeland.

***Dendroica palmarum hypochrysea*.** YELLOW PALM WARBLER.—Although I looked over hundreds of the Palm Warblers which winter in Florida I found this subspecies on only two occasions. Both times seen south of the Library in Clearwater, two on February 6 and one on the next day, February 7.

***Anthus spinoletta rubescens*.** PIPIT.—A flock of twenty-nine was seen on the golf course of the Tarpon Springs Country Club, February 17. Noted almost daily between February 8 and March 11 on the grounds of the West Tampa Junior High School, of West Tampa, Hillsborough County. Two birds only seen by Pangburn in 1918.

***Sitta pusilla*.** BROWN-HEADED NUTHATCH.—A pair was found nesting in a pine, about fifty yards west of the school building in Tampa Shores. First noted on April 22.

***Penthestes c. carolinensis*.** CHICKADEE.—Rare resident. Two seen, three and a half miles east of Ozone, January 19. I believe that *P. c. carolinensis* of Fargo's list is equivalent to *P. c. impiger* of Bent and Copeland and that the Chickadee for this part of Florida is referable to the latter subspecies based on geographical probability. As there is no indication in any of the papers that these birds were collected, and since my only record was based on a sight identification, there is a need for securing some specimens from this section to determine its true status.

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GENERAL NOTES.

On the Status of the Gannet (*Sula bassana*) in the New York City Region.—In the January issue of 'The Auk,' Mr. Alexander Sprunt discusses the occurrence of Gannets (*Sula bassana*) in fall and winter, on the South Carolina coast, citing October 2, 1930, as the earliest date of appearance of that species. He mentions incidentally that October 5 is the fall arrival record for the New York City region as given by Griscom in his 'Handbook of the Birds of the New York City Region.'

In going over an accumulation of two years "field-notes" preparatory to their publication by the Linnaean Society, we find that under date of September 23, 1928, Mr. W. T. Helmuth, Jr., observed Gannets off the beach at Easthampton, L. I., New York. A few others were seen there later in the month. The east end of Long Island is perhaps among the best places near New York from which to observe the Gannet. Recent observations there would seem to indicate that the species is casual in early September, occasionally present during the third and fourth week of that month but rarely plentiful before mid-October. It is chiefly a November and March and April bird in this region. During the last few years, however, the species has lingered regularly off Montauk Point, L. I., and usually in numbers, to mid-January (for instance, five flying east, January 20, 1929, Peterson, Herbert, Kuerzi, etc.). There are one or two fairly recent early February records and in 1930 the species was noted in some numbers during the third week of that month and eight were observed flying east off the beach at Chatham, Mass., February 23 (various members of the Nuttall Club and Linnaean Society). These birds may have been abnormally early migrants—it being unseasonably mild at this time—or perhaps individuals which had remained offshore in the North, during January.

My belief is that the October 2 record of the Gannet on the South Carolina coast is merely an unusually early arrival and is perhaps comparable, in some respects, with the September 23, 1928, observation of the species at Easthampton, L. I., New York, mentioned above.—JOHN F. KUEZZI, *New York City*.

European Widgeon in Georgia.—On January 31, 1931, Mr. F. V. Hebard shot a male European Widgeon (*Mareca penelope*) on the north end of Floyd's Island Prairie, Okefenokee Swamp, Georgia. The plumage of this Duck indicates a young of the year. Definite records of this Widgeon in Georgia seem to be well worth publishing where specimens are preserved. Mr. Hebard presented this specimen in the flesh to the Academy of Natural Sciences of Philadelphia, where it is now in the study collection.—WHARTON HUBER, *Academy of Natural Sciences of Philadelphia*.

A Late Spring Record of Lesser Scaup Duck (*Nyroca affinis*) in Georgia.—On June 28, 1930 while in a boat with Norman Giles, Jr., on Lake Rabun in Rabun County, in the northeastern part of Georgia, I saw

a Lesser Scaup Duck swimming about. We approached slowly and were able to verify it as this form, the bird flying then alighting, flying and again alighting on the lake. It was a male bird and the lateness of the date made us wonder if it could be possible that this species nested anywhere as far south as this. Giles, a very careful observer, had recorded 14 of these birds, 6 males and 8 females, on this same lake on June 11, 1930; and had records for June 10, 11, 12, 13, and 15, 1929 also on Lake Rabun. Arthur H. Howell in 'Birds of Alabama' gives several records around the middle of May and Thos. D. Burleigh, writing from Athens, Ga., says: "A rather unexpected record was that of three birds, all females, seen June 21, 1926." Probably the bird we saw on June 28 was a very late migrant or liked the high altitude of north Georgia better than a section further north among its kindred.—EARLE R. GREENE, 642 Orme Circle, Atlanta, Ga.

Status of the American and Lesser Scaup Ducks in Ohio.—Considerable confusion still exists among Ohio ornithologists and sportsmen concerning the relative numbers and abundance of the American Scaup Duck (*Nyroca marila nearctica*) and the Lesser Scaup Duck (*Nyroca affinis*). Of the former, Dr. Wheaton ('Report on the Birds of Ohio,' 1879, p. 530) says it is a "not uncommon spring and fall migrant in the interior of the State; more common on Lake Erie, but nowhere abundant." Jones in 'The Birds of Ohio,' 1903, p. 42 and Dawson's 'Birds of Ohio,' 1903, p. 604 states that in his experience the Scaup Duck is about one-fourth as numerous as the Lesser Scaup, especially in northern Ohio. Among the sportsmen a large specimen of the Lesser Scaup is usually called a "Big Bluebill" while a small individual is a "Little Bluebill." It is agreed that at present the Lesser Scaup Duck is one of, if not, the most common Duck occurring in Ohio.

During the past seven years I have made quite an effort, as have other members of the Wheaton Club of Columbus, to compile data in regard to these two species. At Buckeye Lake, in the central part of Ohio, I examined and measured 106 Bluebills, most of which were shot by sportsmen. All of these were Lesser Scaup Ducks. Though the majority were taken in the fall hunting season, considerable effort was made during the rest of the year to collect any bird which looked suspiciously like the American Scaup. On a few occasions Ducks have been noted which surely were American Scaups, but in each case it was impossible to collect them.

Some work was also conducted in the Sandusky Bay marshes on Lake Erie, especially at East Harbor, during the latter part of the hunting seasons of 1924, 1925, and 1926. Though over 250 Lesser Scaups were handled and measured, no American Scaups were found. A number of sportsmen have described to me a bird taken on rare occasions in this region, which by its size must have been the "Big Bluebill."

I have been unable to find an American Scaup taken in Ohio, in the Museums and other collections scattered over the State, though a number of birds were found labeled American Scaup which in reality were Lesser.

At present the Ohio State Museum has 27 specimens of Lesser Scaups from Ohio, from the collections of Wheaton, Jasper, Davie, Henninger, and other more recent collectors.

It therefore appears that the American Scaup is one of the rarer of Ohio Ducks, being much less common than usually considered.—MILTON B. TRAUTMAN, *Ohio Division of Conservation, Columbus, Ohio*,

The American Scoter (*Oidemia americana*) Again in Winter on the South Carolina Coast.—In 'The Auk' for April, 1929, the writer recorded the third observance of this species in South Carolina. Since that time additional records have strongly indicated that this species is on the increase along the South Atlantic coast, certainly as far down as Charleston. These records cover a considerable range of season; the first one after the above mentioned one occurring on April 6, 1929 when a fine male was taken alive at the same island where the writer and Mr. Weston saw the flock of eight mentioned in the April 'Auk.' This specimen was secured by Mr. Isaac Grimball and was presented to the Charleston Museum. In December, 1929 flocks of the American Scoter were seen in Bull's Bay by Mr. E. Milby Burton and two companions, several of the birds being taken ('Auk,' April, 1930).

During this past year, the writer saw this species on two occasions off Folly Island, in huge flocks, sometimes so close in that the birds could be seen easily without the aid of glasses, playing and swimming just beyond the surf line. The dates are December 20, 1930; January 17, 1931. For three consecutive winters American Scoters have been noted on the South Carolina coast and are probably to be included in the number of winter residents.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

Black-bellied and Fulvous Tree Duck, in Illinois.—On September 15, 1930, a Black-bellied Tree Duck (*Dendrocygna autumnalis*) was shot, by a hunter, from a tree along the Illinois river, near LaSalle, Illinois. This bird, the sex of which could not be determined, was brought in to a local taxidermist and mounted by him.

In mentioning the above to a friend of mine who is also a commercial taxidermist, he told me that some years ago he mounted a Fulvous Tree Duck (*Dendrocygna bicolor*) which was brought in to him. We looked this bird up in his records and found that it was a male, killed off the Government Pier, in Chicago, on December 7, 1919.

Both these birds looked to be healthy, were in good plumage and did not show any signs of being kept in captivity, although there is a possibility of their being caged birds at one time, a fact though of which no one can feel certain.—JOHN WILLIAM MOYER, *Field Museum of Natural History, Chicago, Illinois*.

Lesser Snow Geese in Barry County, Michigan.—On October 21, 1930, two Snow Geese were shot from a flock of twenty-five, at Crooked Lake, Barry County, Michigan, by J. D. Langworthy of Battle Creek.

On October 27 he collected another at the same place. One of these birds was mounted and on exhibition at Ralph's Sport Shop, in Battle Creek, for some time. It proved to be the Lesser Snow Goose (*Chen hyperboreus hyperboreus*).

Another flock visited the Kellogg Bird Sanctuary for several days during the middle of October.—LAWRENCE H. WALKINSHAW, *Battle Creek, Michigan*.

Hutchins's Goose in Maryland.—A fine male specimen of Hutchins's Goose (*Branta c. hutchinsi*) has just been presented to the collection of the Academy of Natural Sciences of Philadelphia by Mr. R. R. M. Carpenter of Wilmington, Delaware.

This Goose was shot on January 31, 1931 on the Bohemia River, Cecil Co., Maryland, by Mr. Carpenter. He says it "came in with a large bunch of Canada Geese." Duck hunters often talk about seeing "small" Canada Geese in a flock but it is very seldom that specimens are secured and recorded.—WHARTON HUBER, *Academy of Natural Sciences of Philadelphia*.

Roseate Spoonbills in Florida.—To add to the reports of Thomas E. Winecoff and John F. Kuerzi in the October and January issues of 'The Auk,' I am glad to give the following. I am now on Marco Island, Fla., where the greater parts of the last three winters have also been passed. Two years ago I watched for twenty minutes a flock of 15 Roseate Spoonbills in the sky above us. The guide in whose boat we were at the time was born on Marco, and he said he often saw that flock, which a few years before had only numbered about 6, but they had been gradually increasing. My heart as well as my eyes and ears have been open for them ever since. And on February 20, one of the parties of friends from home, with a guide whom I also know well—otherwise I would not be reporting others' observations!—saw approximately 200 Roseate Spoonbills assembling late in the afternoon up one of the small rivers south of this island.

The part which I am not so glad to report is that on the shore, not far from the roost, were the bones of five of these "pink curlews," the breasts of which had been cut off probably because they make "very good eating!" More game wardens are evidently needed!—CATHARINE A. MITCHELL, *Riverside, Illinois*.

Little Blue Herons and Egrets at York, Pa.—Williams Lake, water supply basin for York, Pa., is surrounded by a large land area, planted in a million trees. The Cordorus Creek, water supply of this basin, contains bog and swale which offer a paradise to water birds.

Great Blue Herons (*Ardea h. herodias*) were seen there the early half of March, 1930. On July 10, I saw five specimens and the last on September 21 when I left the locality.

On July 7 I observed for the first time a Little Blue Heron (*Florida caerulescens*) in the white plumage fishing in the Cordorus bogs, also in greater numbers on several occasions, till July 26 when the swamp was full of birds

as far as the eye could see. Great Blues, Little Blues in white plumage, and one mature bird in blue plumage. I counted 33 of this species feeding in the swale, and perched in the trees, also noted a Kingbird chasing one, which did not hurry its flight. These birds continued to come from around a bend in the stream and light among the tall cat-tails. There were also two stately American Egrets (*Casmerodius egretta*).

I saw these in smaller numbers from time to time. Last date for American Egrets, August 21. Last date Little Blue Heron, September 21. This last specimen showed considerable blue in wings when in flight.—(Mrs.) Mary D. DISE, Box 51, Glen Rock, Pa.

Baird's Sandpiper (*Pisobia bairdi*) at Washington, D. C.—This species was first seen by the writer September 3, 1928, in East Potomac Park, D. C. It was next seen September 28, 1930, Columbia Island, D. C. The following observations were made at Alexander Island, near Gravelly Point, Virginia: October 9—two seen; October 11—two seen, one collected; October 16—one seen; October 18—two seen, one collected; October 19—one seen; October 23—two seen, one collected—these dates are all for 1930. The three specimens are in the collection of the U. S. National Museum. There are but two known previous records for this species in this region, two specimens taken at Four Mile Run, Virginia, September 3 and 25, 1894.—W. HOWARD BAILL, 1861 Ingleside Terrace, N. W., Washington, D. C.

A Specimen of Baird's Sandpiper (*Pisobia bairdi*) from South Carolina.—By a curious chain of circumstances I am able now to record the first specimen of *Pisobia bairdi* to be taken in South Carolina, though a sight record for the species has already been published.

On June 1, 1928, I was collecting shore-birds on Morris Island, at the mouth of Charleston Harbor and as dusk was falling a small Sandpiper was seen on the beach which I took for a White-rump (*Pisobia fuscicollis*). Several of the latter had been seen on the Island about two weeks before and I had taken a few. I collected the bird and put it in the basket with some haste as the state of the tide made it necessary to regain the launch as soon as possible. While skinning my birds that night I saw that the one taken at dusk was different in character from *fuscicollis* but being quite pressed for time did not compare it at once and lack of room caused it to remain stored until a short while ago, when I discovered that the specimen was *Pisobia bairdi*. It is in fair plumage and the diagnostic characters of black feet and legs; white throat, sides and belly together with the fuscous middle upper tail coverts which are lightly but quite distinctly margined with buffy, are all present.

On May 5, 1929, Mr. Philip A. DuMont saw a specimen of this species at the Ordnance Depot near North Charleston but did not take it. I also had seen what I took to be *bairdi* on a beach near Edisto Island, S. C., during early December 1928, but I was not sufficiently acquainted with

the species to be sure of myself. However, the bird taken on June 1, 1928, and the one seen the next spring would seem to indicate that my winter bird was *bairdi* also.—ALEXANDER SPRUNT, JR., 92 South Battery, Charleston, S. C.

Additional Notes on Winter Shore-birds on the South Carolina Coast.—The writer has for some years been much interested in pursuing a study of the winter shore-birds of the South Carolina coastal area. This study has resulted in several surprising conclusions, some of which have been mentioned in 'The Auk,' notably the establishing of the Knot (*Calidris canutus rufus*) and the Piping Plover (*Charadrius melodus*) as regular winter visitors. These species had been regarded in the past as transients only.

The winter of 1930-31 has corroborated these findings and opened up others. The Piping Plover was found in some numbers about the Savannah River entrance in January of this year (1931). Specimens were taken on the 24th, and Mr. Ivan Tomkins of the U. S. Dredge "Morgan," in whose company the writer was, says that he sees them regularly each winter. He presented the writer with a specimen taken on January 10, 1930. A new discovery was the finding of two Hudsonian Curlews (*Numenius hudsonicus*) on the mud flats about the mouth of the Savannah River. The birds were in excellent condition, feeding freely on the flats and trading back and forth across the Georgia-South Carolina line. This is the first time that they have been recorded in winter in the writer's experience, which covers many years. Mr. Tomkins has not seen them before this winter though he has worked in the Savannah River entrance for about nine years. Mr. A. T. Wayne took a specimen on December 11, 1917.

Another interesting incident was the observance of a Marbled Godwit (*Limosa fedoa*) at the same locality on January 23, 1931. Mr. Tomkins has taken several of these birds in fall and winter but it constituted another winter month for the writer for South Carolina, observations on this species now having occurred in November, January and February.—ALEXANDER SPRUNT, JR., 92 South Battery, Charleston, S. C.

Nesting of the Greater Yellow-legs (*Totanus melanoleucus*) in Alberta.—The Greater Yellow-legs (*Totanus melanoleucus*) has generally been considered a rare migrant in central Alberta, but ornithologists have for years believed it would ultimately be found breeding in the near north, most probably in the partially wooded lake region lying between the Saskatchewan and the Athabaska rivers, north of Edmonton. Much of this area is in the Canadian Life Zone and consists of extensive muskegs, lakes of varying sizes, surrounded by marshes, and great stretches of jack-pine sand-ridges which have been more or less denuded of timber by recent fires. There are, however, scattered sections of good arable land, mostly along the river bottoms, where cultivation is carried on to a considerable extent, and in such places many species of birds, peculiar to the Transition

Zone, spend the summer. Because of the mystery which has long surrounded the nesting of the Greater Yellow-legs, particularly in western Canada, much interest has been displayed by local ornithologists in the attempt to unfold the secret.

In 1919 I spent the latter part of June in the country north of Lac la Biche, a region of muskeg, lakes and jackpine ridges. While skirting one of the lakes a pair of Greater Yellow-legs challenged my right to pass through a piece of marshy ground, and, from their actions, it was evident they had eggs or young in the vicinity. While still a considerable distance from the marsh, the birds evinced great concern at my presence, flying directly overhead and scolding harshly as I approached the guarded ground. During a half hour's search for the nest, the birds rested impatiently on a dead tree close by, all the time calling "kelp"- "kelp"- "kelp." A close inspection of the marsh, however, revealed neither eggs nor young.

In the fall of 1922, while hunting moose and deer in the triangular tract of country formed by the junction of the Pembina and Athabasca rivers, I was struck with the similarity of the region, to that of the Lac la Biche country referred to above. Here were numerous small lakes, many miles of muskegs, and long stretches of jackpine sand-ridges, apparently ideal nesting sites for the Greater Yellow-legs. Working on this assumption it was decided to visit that section, and should the birds be there, endeavor to learn something of their nesting habits.

On May 20, 1929, Dr. Wm. Rowan, Mr. Arthur Twomey and the writer arrived at the little hamlet of Fawcett, on the Northern Alberta Railway, less than a hundred miles north of Edmonton. The following day camp was made close to an old logging trail, seven miles west of Fawcett, and about midway between the Pembina and Athabasca rivers. In the vicinity of the camp were several lakes varying in size from ten to three hundred acres, all more or less surrounded by marsh, muskeg or sand-ridges. At least ten pairs of Greater Yellow-legs, and a few of the Lesser Yellow-legs were noted within two miles of camp, and it was evident they were on their nesting grounds. However, a week's careful search failed to show where, or how they nested, although many arduous hours were spent working over all kinds of country. The birds showed greatest concern while the edges of the marshes were being hunted and at such times strongly resented our presence. Towards the end of the visit the reason for this excitement was explained when downy young were found. It was then and there decided the nesting season was over.

May 9, 1930, found Mr. Arthur Twomey and the writer in camp at a location about three miles further west than that chosen for headquarters the previous year. Observations made during the trip in satisfied us that at least a dozen pairs of the birds were located within two or three miles of the camp, but, strange to say, they showed little or no interest in our presence. Occasionally one or two of the birds were seen high in the air, sometimes performing in wide circles over certain sand-ridge openings,

while others were noted flying from one lake to another, probably changing their feeding places. While the birds carried on their aerial performances, their songs, which might be represented by the syllables "wig-ily"- "wig-ily"- "wig-ily," with the accent always on the first syllable, could be heard at great distances.

On May 10, it rained most of the day and although quite a number of the birds were seen, some in the air performing, and others quietly feeding in the marshes, no clue was elicited as to where they nested. On the 12th a nest of the Lesser Yellow-legs (*Totanus flavipes*) was found on a low swampy piece of ground, an unusual situation for this species which likes the dry ridges for nesting. While walking along the old trail on the 14th a mile east of camp, a Greater Yellow-legs came from the south and circled overhead, apparently excited at our presence. It soon lit on a tall isolated stub, and commenced to scold by rapidly repeating "kelp-kelp-kelp-." Shortly afterwards it circled and lit on a shorter stub 150 yards southwest of my position, and nearer to Mr. Twomey, who had taken cover under a small live jackpine. In a few minutes it made off for the lake a half mile south of the opening. I then joined Mr. Twomey and we decided to remain in the vicinity under cover, believing the bird was nesting somewhere on the ridge. It soon returned and lit on a still shorter stub, and apparently in great excitement, rapidly repeated its notes "kelp-kelp-kelp" for several minutes at a time. It then quieted down and after watching in all directions dropped to the ground about fifty feet from the base of the stub. Mr. Twomey and I walked towards each other, to the spot where the bird disappeared, and it quietly flushed at about twenty feet, and went directly to the lake. Only one bird was seen. No difficulty was experienced in finding the nest which was a slight depression in the sandy soil, lightly lined with grass. It contained one egg only. The nest was placed in the center of a large opening on a sand-ridge, which was thickly littered with fallen timber. The elevation was about fifty feet above the surrounding lakes, two of which were within a half mile of the nest. Two small jack-pines 150 feet from the nest were the only live trees in the vicinity. A visit was made to the nest on May 16 when it was found to contain three eggs. On the 17th there were no additional eggs, and as several Crows were that day seen in the vicinity, the set was collected. The ground color of the eggs is deep buff, spotted with light, medium and dark brown spots and blotches, spots are heavier at the larger end. The eggs measure as follows, No. 1, $1\frac{1}{8} \times 1\frac{1}{4}$ inches; No. 2, $1\frac{1}{8} \times 1\frac{1}{32}$ inches; No. 3, $1\frac{1}{32} \times 1\frac{1}{4}$ inches. The bird was first observed coming from the south at 10.15 A. M. and the nest was found at 11.30. During this period the following list of birds were noted, either seen or heard within a mile of the nest, Sandhill Cranes, Loons, Bonaparte's Gulls, Dowitchers, Canada Jays, Ruby-crowned Kinglets, Lincoln's and White-crowned Sparrows.—FRANK L. FARLEY, *Camrose, Alberta.*

Abundance of the Passenger Pigeon in Pennsylvania in 1850.—

My attention has been called to a letter published in a work¹ compiled by Mary Thomas Seaman, which shows only another instance of the countless numbers of Passenger Pigeons which once inhabited Pennsylvania as well as other States.

Letter from Peter Yarnall to Rebecca Yarnall, Columbia, Lancaster County, Pennsylvania:—

Jersey, March 17th, 1850

My Dear Sister,

"The pigeons have visited us again this spring in such numbers, that through the last week we could get all, or more than we could make use of, with little trouble, we do not shoot them, but a few traps in the corn field, supply us with all we can take care of, our traps are made of sticks, like partridge traps, and we take them alive. It would surprise thee to hear what numbers we catch, in that way, James made a trap just 4 feet square and set it, in about two hours he went to it, and found twenty-one pigeons in it, yesterday we caught one hundred and three altogether; I do not approve of shooting them for so many get wounded, that suffer and die, it seems cruel. Thee may wonder what we do with so many at once, we have a coop 12 feet long and 8 ft. wide with poles placed for them to roost on, here we turn them loose, and feed them. When they are first caught, they will not eat before us, but I was surprised to find how soon they grow tame, in a day or two they will come forward and eat like chickens. We now have one hundred and fifty-three in our coop. It will accommodate perhaps two hundred if they continue so plenty in a day or two more we will have to leave our traps down, only catching what Lemuel's family, and ours can make use of. A description of the habits of this bird may be interesting to thee; as they only visit your County transiently, you know but little about them, here they come in such vast numbers, as at times to almost darken the horizon. I have known a flock passing over our heads that has continued I think a full half hour before we could see the end of it. When they visit us in the spring, they form what is called by some a pigeon encampment. After selecting a piece of woods that will suit them, they commence building their nests on every tree, some have twenty or more on according to the size of the tree, thus they continue on for miles; a few years ago there was an encampment about six miles south of us, on a tract of unimproved land, this was said to be four miles long. After their eggs are laid, the male bird sets on them half the day, and the female the other half, and take their regular turn in the same way while taking care of their young; this we found out by catching them in our traps, in the forenoon I think it was, we caught all he ones, in the afternoon all she ones; this was invariably the case, I do not recollect an instance at that time, of catching the two kinds together. There is another peculiarity, other small birds

¹ Thomas Richardson of South Shields, Durham County, England and his descendants in the United States of America compiled by Mary Thomas Seaman, 1929.

carry the food to the young in their beaks, but the pigeon carries it altogether in its crop; and has it in its power to eject it at pleasure, was it otherwise it would be very inconvenient, for they often go fifteen, twenty, and perhaps thirty miles for their food, and altho they fly verry fast, they would become verry tired carrying it in their mouths. When the young pigeons become fledged, they are so fat, that they are much heavier than the old ones, and can not do much at flying, the surrounding inhabitants (at least many of them) far and near, come to the encampment to supply themselves with squabs, they strike the trees with their axes, and frighten them out of their nests, and catch them, thousands are taken in this way, and hundreds destroyed by birds of prey. When the encampment was six miles from us, two of my neighbors came by with their waggon, and wished me to go with them, not having time, I let my two little boys go with them, in the evening they returned with 33 squabs to their share, they had much more fat on than was required to cook them and I thought it the most delicious meat I ever tasted, of the wild kind.

I have filled up my letter so much with pigeons that I have but little more room, but if it is not interesting, excuse me, and I will try to do better in future."

believe me thy ever affectionate

Brother P. Yarnall. Write soon.

—RUTHVEN DEANE, 112 W. Adams St., Chicago.

Doves using an old Robin's Nest.—A pair of Mourning Doves (*Zenaidura macroura carolinensis*) used a last year's Robin's nest which had been placed on a projection under the eaves of a house. Early in the year the pair began to make visits of inspection to the nest. It was repaired and the first brood hatched April 3. They left the nest April 25 and immediately the pair put a new lining in the nest. This was repeated for each nesting, during the season. The fifth brood left the nest September 1, 1930.—MYRA KATIE ROADS, Hillsboro, Ohio.

The Mourning Dove in Alaska.¹—On October 9, 1916, Dr. Thomas E. Winecoff collected a Mourning Dove at Fort Yukon, Alaska. This specimen subsequently came to the United States National Museum, where it now is. The skin is in poor shape, but is definitely identifiable as the western subspecies *Zenaidura macroura marginella*, as it has the rather pale ventral coloration characteristic of that race. Its dimensions are as follows:—wing 144; tail 112; exposed culmen 14 millimeters. The bird, which is a male, constitutes the first record for Alaska, and the northernmost for the species. It seems that the Mourning Dove is only a casual straggler so far to the northwest, but its known range must be extended to include the present record.—HERBERT FRIEDMANN, U. S. National Museum.

Intestinal Parasites in Sharp-shinned Hawks.—Twenty-three Sharp-shinned Hawks were shot on September 29, 1930, in Schuyllkill

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County, Pa., and sent to the Pennsylvania State Game Commission. While examining the stomach contents of these Hawks I found that 48 per cent were infested with intestinal roundworms. Seven Hawks had the worms *Porrocaecum depressum*, two had *Physaloptera*, species not determined, and two had both kinds. Nine birds had no roundworms and three had the intestines entirely destroyed, precluding an examination for parasitic worms. The number of roundworms varied from one to ten. They were found in the intestines and in three birds both kinds occurred in the stomachs. The identification was established by Dr. Albert Hassall, of the Bureau of Animal Industry, Washington, D. C.—MERRILL WOOD, *Harrisburg, Pa.*

The Pigeon Hawk (*Falco columbarius*) in Winter on the South Carolina Coast.—The first known occurrence of the Pigeon Hawk (*Falco columbarius*) on the coast of South Carolina, in the writer's experience was noted on January 24, 1931 on the beach of Turtle Island at the Savannah River entrance and only a mile or less, from the Georgia state line. In company with Mr. Ivan R. Tomkins, who is stationed on the engineer dredge "Morgan" at Savannah, Georgia, the writer was walking the beach of Turtle Island in quest of ornithological developments. A Boat-tailed Grackle (*Megascopus major*) took flight from a low bush near high-water mark and flew away from us as we approached. Hardly had we noticed it before there was the flash of a speeding form above our heads and a fine adult Pigeon Hawk stooped at the Grackle with lightning speed. It missed the bird, however, and the two gyrated wildly in the air in front of us at short range for a few moments, the Grackle finally eluding the Falcon by diving into high grass. Two shots were taken at the daring Hawk but both missed. Nearly every detail of the plumage was visible in the bright sunlight.

Arthur T. Wayne in his 'Birds of South Carolina' says, on page 78, that "although this species is said to 'winter in Massachusetts and to the southward' it certainly does not occur at that season on the coast of South Carolina." Since his book was published, however, he saw a Pigeon Hawk in his yard on January 14, 1911 and the same bird was seen again on the 16th. These are the only other records of the species in winter. Mr. Tomkins, who has done field work in the vicinity of the Savannah River entrance for some years and who is an exceptionally keen observer has not noted this Hawk previously, and the writer's experience on coastal islands of the South Carolina region has been the same.—ALEXANDER SPRUNT, JR., 92 South Battery, Charleston, S. C.

Tameness of Saw-whet Owl (*Cryptoglaux acadica acadica*).—Looking with glassy, unblinking yellow eyes directly into strong sunshine a little Saw-whet Owl stood on a low branch of a thorny bush about two feet above the ground and within thirty feet of the principal highway which leads through Rouge Park, Detroit, early on the morning of March 23 1930, when I came upon him.

He was surprisingly tame permitting me to stroke his prettily streaked head and indulge in other familiarities without resenting it or showing any uneasiness. After playing with him for some time I decided to persuade him to find a more secluded perch on which to rest and sleep during the day. A conspicuous site easily visible from a well travelled, concrete roadway is no place for an Owl to spend the day or even take a nap and certainly meant danger later when the crowds began to stroll about. Fearful of his claws I took a small stick and gently inserted it—or tried to—under his feet. Instead of flying away as I expected he simply lifted up one foot and then the other as he felt the stick disturb his equilibrium. Despairing of dislodging him in this way I attacked him from front and rear by tapping his foot with the stick and gently pressing his tail. The moment he felt the double attack he darted up in a panic, flew directly into a thorn apple tree and disappeared from sight. The most careful scrutiny of the tree and surrounding vegetation failed to disclose his hiding place and I left the vicinity elated with the adventure and happy in the belief that the little bird was safe, at least for the day.—ETTA S. WILSON, 9077 Clarendon Avenue, Detroit, Mich.

Snowy Owl on the New Jersey Coast.—On December 22, 1930 David Leas and myself saw a Snowy Owl (*Nyctea nyctea*) sitting on the beach below Beach Haven, N. J. The Owl appeared to be very tame and several times allowed a very close approach. Once we were able to approach to within about forty yards before the bird arose, apparently reluctantly, and moved on for a short distance. Finally after several such performances he flew out over the water to an island in the bay flying close to the water with a very slow wing beat and frequent soaring.—EARL T. HIGGONS, Penn Wynne, Pa.

Snowy Owl in Maryland.—While on a field trip along the Eastern Shore of Maryland with Mr. S. E. Perkins, III, information was brought to us concerning the capture of a Snowy Owl. We repaired to a meat and produce shop in Cambridge, Dorchester County, and were shown a good-sized specimen of *Nyctea nyctea*, its left wing broken by shot. It had been discovered on the morning of November 28, at Town Point, near Cambridge. When first seen it was perched on a fence post, warding off the attacks of a flock of angry Crows. The bird was in good condition, aside from the broken wing. Its movements were slow and deliberate, but altogether vicious. It was said to eat greedily bits of meat that had been thrown to it. It was heavily barred; length (approx.) 24 inches; weight $3\frac{1}{2}$ lbs.—ROBERT P. ALLEN, Nat. Asso. Audubon Soc., New York.

Two interesting Notes from East Tennessee.—A Snowy Owl (*Nyctea nyctea*) was shot at Johnson City on December 31, 1930, and sent to a taxidermist at Knoxville, where it was identified by the local bird club. According to A. F. Ganier this is the third record for the State.]

A Golden Eagle was taken in Monroe Co., January 3, 1931, which during

a snow storm had flown into a wire fence and become entangled. It was brought to Knoxville and offered for sale.—H. P. IJAMS, Knoxville, Tenn.

Snowy Owl in Georgia.—Hearing that a Snowy Owl had been found in Hall County, Ga. and sent to Mr. D. V. Hembree of Roswell to mount I hurried out to his home on January 6 and verified the statement. It was a beautiful white specimen of *Nyctea nyctea*, a male bird with only a few marks on the wings and the upper part of the tail and a few buffy marks on the upper back or nape. It measured about 22.5 inches from bill tip to tail tip and had a wing spread of about 58 inches. Since then I have driven to Gainesville and out to the home of O. V. Buffington near Gillsville in Hall County. His place is in north Georgia, less than sixty miles from Atlanta, and about 25 miles north of the 34th degree of latitude. Mr. Buffington stated to me that he found the Owl dead, early on the morning of December 31, 1930, that it had apparently killed itself trying to get his chickens, as it was entangled in a barbed wire fence, its head under the middle strand, its wings over the top and its feet resting on a lower strand. He said that he had seen it several times for a month or six weeks and that it had killed 34 out of 37 of his chickens. There are very few if any records for this species for Georgia and it may indicate that another southern invasion is taking place.—EARLE R. GREENE, 642 Orme Circle, Atlanta, Ga.

A Snowy Owl from Coastal Georgia.—On February 8, 1931, I shot a female Snowy Owl (*Nyctea nyctea*) inside old Fort Pulaski. The fort is on Cockspur Island, in the salt water marshes and about fourteen miles east of Savannah. The walls inclose perhaps two or three acres of ground, well grown up with wild peach trees, lavender bushes, etc. Doctor Hollis, of the Quarantine Station, had told Gilbert Rossignol and myself of having seen, the day before, a "white Owl feathered clear down to the toes," sitting on a railing on top of the fort wall. We had easily dismissed the idea, by saying that he had seen a Barn Owl in some particular light that made it look white to him. The morning of the 8th, while I was looking at some traps set for small mammals, the Owl flew across the inclosure, and when shot, fell on top of the wall.

The bird was fat and appeared healthy. It was heavily barred on breast, belly and sides, and quite dark above. The plumage was somewhat worn, and rather dirty, which seems to indicate that it had been living for some time in this or some similar locality, with similar mud flats. In the stomach was one large pellet, which has not been carefully examined at this time, but which appears to consist largely of feathers.

It was reported to me that another Owl flew over the dredge in the early morning of February 14. The leverman on watch followed it with the searchlight towards the fort—a distance of about a half mile—and after looking at the skin I have says it was the same, but nearly white. I have visited the locality several times, but have seen no others.—IVAN R. LAMKINS, U. S. Dredge "Morgan," Savannah, Ga.

The Genus *Cuculus* in North America.¹—While engaged in field work in St. Lawrence Island, Bering Sea, during the summer of 1930, Mr. H. B. Collins of the Division of Anthropology of the United States National Museum, obtained a collection of birds gathered by an Eskimo collector at Gambell, in the northwestern part of the island. Among the birds thus obtained is a female example of *Cuculus canorus*. The species had been recorded previously only once in North America—by William Palmer ('Auk,' 1894, p. 325), who collected a male, identified as *Cuculus canorus telephonus*, on St. Paul Island, Bering Sea, July 4, 1890. The receipt of the St. Lawrence Island bird has provided an opportunity for re-examining the St. Paul Island bird as well as for identifying the former specimen. Our conclusions, as given below, are based on a study of a series of Asiatic specimens in the United States National Museum.

The bird collected by William Palmer is not, as has been thought (and stated in the 1910 A. O. U. Check-List), the Asiatic Cuckoo, *Cuculus canorus telephonus* Heine, but the Himalayan Cuckoo, *Cuculus optatus* Gould. Dr. Stejneger has examined the specimen with us and agrees with the present identification. The bird brought back by Collins from St. Lawrence Island is an example of *Cuculus canorus*, not however of the Japanese *telephonus*, but of the Indian race *bakeri* Hartert. It might have been expected that if any race of *canorus* were to wander over to St. Lawrence Island it would be *telephonus*, the form geographically nearest to the island, but the present bird is clearly referable to *bakeri*, which differs from *telephonus* in its darker dorsal coloration and in the heavier, dark ventral bars.

It may be noted that the breeding ranges of *telephonus* and *bakeri* are not yet satisfactorily mapped out. Hartert and Stuart Baker both restrict *bakeri* to India, the Khasia Hills, etc., while the Himalayas and northward are supposed to be inhabited by *telephonus*. However, Rothschild (Nov. Zool., vol. 33, 1926, p. 236) has recorded specimens of *bakeri* from Yunnan, and the United States National Museum has a number of specimens of this race from the mountains of northwest Yunnan and western Szechwan. Lönnberg (Ibis, 1924, p. 318) and Bangs and Peters (Bull. Mus. Comp. Zool., vol. 68, 1928, p. 331) consider birds from Kansu and eastern Tibet as *bakeri*. It would seem, therefore, that *bakeri* is the breeding form of *Cuculus canorus* in the mountains of Burma, northwest Yunnan, western Szechwan, Kansu, and eastern Tibet.

The study of the two accidental occurrences of Asiatic cuckoos in Alaska, has led us to believe that in the new edition of the A. O. U. 'Check-List' they should stand as follows:

1. *Cuculus optatus* Gould should replace *Cuculus canorus telephonus* Heine; and
2. *Cuculus canorus bakeri* Hartert should be added.—HERBERT FRIEDMAN AND J. H. RILEY.

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Rearing Young Nighthawks.—It may be of interest to ornithologists to report the rearing of three Nighthawks (*Chordeiles virginianus virginianus*) in captivity. These birds were presented to the park while still young and have flourished. The exact history as regards their capture is incomplete, but I believe they were obtained by a boy from the roof of an apartment house, where the adults nested as they frequently do.

Being aerial feeders it is necessary to hand feed them as they will not make any effort to pick food from a pan. Meal worms were fed in abundance during the early part of their life, and now, being in adult plumage, Mockingbird food, and boiled egg are consumed. The birds are approximately seven months old, and seem satisfied on their modified diet. During the day they remain quiet, fluttering around at night.

This is probably the first, or one of the few, instances of the species in captivity.—MALCOLM DAVIS, *Nat. Zool. Park, Washington, D. C.*

Arkansas Kingbird in Massachusetts.—On Thanksgiving Day, November 25, 1930, I had the extreme good fortune to identify at close range an adult male Arkansas Kingbird (*Tyrannus verticalis*) at Ware, Mass. According to Mr. Forbush, in 'The Birds of Massachusetts etc.,' the bird has heretofore been found near the coast and then only occasionally—he quotes sixteen Massachusetts records from coastal cities and towns.

Ware, Mass. is about 75 miles from the sea and lies just outside the valley of the Connecticut River.—JOHN H. CONKEY, *Boston, Mass.*

Arkansas Kingbird in Florida.—There are in the collection of Field Museum of Natural History two specimens of *Tyrannus verticalis* taken at Miami Beach, Florida, December 2, 1922, by W. W. Worthington. Both are young males.

Dr. Harry C. Oberholser informs me that there are two published records of the occurrence of this bird in Florida (Williams, Auk, XX XVII, 1920, p. 142; Longstreet, Halifax River Bird Club, Bull. no. 2, Feb., 1924, p. 9).—PIERCE BRODKORB, *Evanston, Illinois.*

A Crow Impaled in Flight.—While on a bird walk in a dense woods near Clarence, N. Y. in March 1926, a dead Crow (*Corvus brachyrhynchos brachyrhynchos*) was discovered hanging in a soft maple tree, about twelve feet from the ground. It was first thought that the bird had been shot and had lodged in the tree, but upon a nearer approach it was seen that the bird was hanging by the wing on a small stub which projected from a dead limb. The limb and Crow were procured and taken to the laboratory for measurements and study. The dead limb was an inch and one-eighth in diameter, eight feet long and had grown to be nearly parallel with the trunk of the tree, so that it was directed nearly straight up. From this limb extended several stubs of dead branches. One of these stubs, one half inch in diameter and about six inches long had been broken off in such a manner that it had a very sharply pointed tip.

An examination of the Crow and the limb revealed, that in flying through the woods, the bird had on a downward stroke of its left wing, struck this sharp point, so that it penetrated the wing membrane or patagium, on the anterior side of the radius about three fourths of an inch from its base. The shape and position of the limb was such that the wing, when impaled, allowed the body to fall through an arc of ninety degrees from the plane of flight and then twist so that the bird hung with its back toward the limb, a position in which it was entirely helpless. It was so securely impaled that, because of its weight, the length of the stub, and the absence of anything upon which it could stand, it was unable to free the wing and consequently hung there until it died, probably from strain and starvation. The weight of the bird and its struggles had slit the membrane distally until only a mere shred of the long patagial ligament was left to suspend it at the distal end of the radius.

That the bird was suspended there for some time was evidenced by the fact that it had used both its bill and claws with considerable effect on the limb. Several deep scratches were made in the dead wood by the bill and in one place the whole surface of the wood had been torn away. The condition of the tail feathers also showed that considerable excrement had been discharged while the bird was suspended in this position. At the base of the stub there was also a marked groove which had been worn by the tissue which held the bird.

That the victim was a mature bird, was shown by measurements, plumage, and condition of the bones. It would not be as surprising had the bird been a young one just learning to fly. The accident had occurred probably in the late fall for the body had dried up more or less instead of rotting, and going to pieces, as would have been the case in the warmer weather, when fly larvae were active. The condition of the feathers at the time it was found was remarkably good for the long time that the bird had been dead.

Such an accident as this is so unusual that a record of its occurrence seemed worth publishing.—ALBERT R. SHADLE, *Biology Dept., Univ. of Buffalo, Buffalo, N. Y.*

The Relationships of the American Magpies.—It seems to be generally accepted that the Black-billed Magpie of America is a subspecies of the Old World *Pica pica* also that the Yellow-billed Magpie is a full species.

Obviously the yellow bill of the last named is regarded as a very distinct and qualitative character, this yellow pigmentation invades the whole head skin of *nuttalli* although it is only readily apparent on the bill and the triangular space behind the eye. In a freak specimen collected by the writer the yellow also appears on the claws of both feet, this rather indicates that the yellow of the head and bill may not be of very ancient origin. A member of the Old World group has the head skin pigmented a brilliant blue yet it is only regarded as a subspecies.

In other characters the Yellow-billed Magpie hardly differs from the

black-billed bird, the voice is the same in all the varying notes and calls. But the iris is the same color as that of the Old World forms and differs from that of *hudsonia*.

During four years in France the writer was surprised to note the great difference in voice between the Old and New World Magpies, the latter to his regret have no call that he can imitate sufficiently well to decoy the birds to him, the former on the other hand had two easily imitated calls and decoyed readily. A more striking distinction was the color of the iris, plain dark brown in the Old World forms and brown with a conspicuous outer ring of milky white in *hudsonia*.

That the solid brown iris of *Pica pica* extends across the whole of the Palaearctic region is proved by the record of that very careful observer Dr. Leonhard Stejneger who, in Bulletin 29, U.S. National Museum, gives the color of the iris of the form *kamschatica*, which he regards as a full species, as altogether dark brown.

To sum up the situation, *nuttalli* agrees with *hudsonia* in voice but not in eye color, with the Old World forms in the latter character but differs from them in voice. In the color of the bill and head skin it is unique.

Hudsonia agrees with *nuttalli* in voice which is absolutely distinct from that of the Old World forms and it also has a unique character, the color of the iris.

Eye color is a much more permanent character than that of the bill, many birds regularly change the bill color with the seasons, but the color of the iris once acquired is almost invariably permanent.

So the logical action is either to regard both of the American Magpies as distinct species or both as subspecies of *Pica pica*. The present writer leans to the view that they are both entitled to specific rank as *Pica hudsonia* and *Pica nuttalli*.—ALLAN BROOKS, *Comox*, B. C.

Migrating Blue Jays.—The sentence at the bottom of page 439 of the July, 1930, number of 'The Auk' reads "He also insists that Blue Jays migrate." This must have surprised many readers, especially those living in the Mississippi Valley region, who have seen thousands of migrating Blue Jays. It brings up the question "Do Blue Jays of the Atlantic Coast have a different habit?"

In the interior of North America the migration of Blue Jays is as regular as that of the White-throated Sparrow with which it closely coincides in time, occurring for about a month in the spring and a similar period in the fall. Several flocks of these migrants may be seen in each season by those who spend time out-of-doors. The migratory flocks, varying in numbers from eight to a hundred or more, often fly so low that they can be identified by the naked eye. Quite often a flock of these birds will alight in the trees about one's home, sometimes indulging in their "jay jay" calling, and having taken a short rest, they fly onward in their scattering flock formations.

The description given by Dr. Barrows in 'Michigan Bird Life' is accurate

for Iowa also. He says that thousands of migrating Blue Jays are seen in that state. Dr. R. M. Anderson in "The Birds of Iowa" states "While common throughout the year, the species seems to perform an imperfect migration, as scattering flocks containing hundreds of individuals are often seen flying southward in September or October, and northward in the spring." In 'The Wilson Bulletin' for December, 1930, Fred J. Pierce in his article "Birds of Buchanan County, Iowa" makes this statement "The species is migratory to a considerable extent and becomes very common during the spring migration. In late September large flocks are sometimes seen proceeding southward. I have seen as many as 200 in such a flock."

Throughout its range in Canada and in the United States the Blue Jay is reported as seen by most of the takers of the Christmas Bird Census. Future investigations may find a reason for many of the species remaining within their breeding range in winter, while others migrate. Feeding tables have been visited by the same Jays all the year round, proving that they are "permanent residents."—ALTHEA R. SHERMAN. *National, via McGregor, Iowa.*

Late Nesting of the Goldfinch in North Carolina.—In the January number of 'The Auk,' vol. XLII, Mr. James J. Murray reports from Blowing Rock, Watauga County, North Carolina the nest of a Cedar Waxwing, containing four eggs, observed by him from August 12 to August 28, 1929, and a fledgling Goldfinch, apparently having just left the nest, seen during the same period. In connection with these interesting late dates I believe it worth while to report the equally phenomenal circumstance of the nest and eggs of a Goldfinch (*Astragalinus tristis tristis*) observed by me on September 10, 1930 at Highlands, Macon County, North Carolina, on the estate of Mr. Robert Eskrigge, at an altitude of 4,200 feet. The nest was located in an exposed situation on the extremity of one of the lower branches of a fruit tree two or three rods from the house. Due to the position of the branch, overhanging a steep embankment, I could not reach the nest to count the eggs, the tops of which, however, were visible from the tree-trunk. Moreover, Mr. Eskrigge, who called the nest to my attention, had noticed it but a few days before, and as I left Highlands myself three days later I have no way of knowing in what period of incubation the eggs then were or whether the brood was successfully reared. But in any event, I believe this date to be a very late one for the nesting of the Goldfinch.

The female, who was on the nest when I first observed it, was, like Mr. Murray's Waxwing, very tame and apparently quite unconcerned about the presence of four or five people gazing up at her from below. Finally, wishing to see more of her than her head, which protruded over the side of the nest, and also the interior of the structure, I had to resort to the expedient of shaking the tree before she would take wing.—CHARLTON OGBURN, JR., *Highlands Museum and Biological Laboratory, Highlands, N. C.*

White-throated Sparrow in Virginia in June.—At 1 P. M. June 13, 1930, while in the Appomattox river low grounds, on the boundary line between Amelia and Powhatan Countys, Va., I heard three times repeated, the clear, loud "pee-pee-peebody-peebody-peebody" of the White-throated Sparrow (*Zonotrichia albicollis*). A few minutes search gave me a good, clear look at a beautiful, full plumaged male of the species, at a distance of about thirty-five feet. A half hours search did not reveal any more individuals. This is twenty-five days later than my latest previous record, which is May 19, 1926, in Brunswick County, Virginia. The last flock of White-throats for the spring was recorded May 6. The average date of lasts in Brunswick County is about May 11.—JOHN B. LEWIS, *Amelia, Va.*

A Shufeldt's Junco (*Junco oreganus shufeldti*) in Ipswich, Mass.—In December, 1930, among the dozen or more Slate-colored Juncos at a feeding station at my house at Ipswich, Mass., I noticed one that was plainly different and evidently a western form. I was on the point of collecting it when it disappeared. I was away most of January, but on my return, I found the western Junco still in attendance, and noted his points before collecting him on January 30, 1931. The most noticeable ways in which he differed from *Junco hyemalis hyemalis* were buffish pink sides instead of slate-gray; a black head and neck especially in front instead of a slate-colored one; a slightly brownish back contrasting with the black head instead of a uniform slate color for both as in the adult *hyemalis*, and a slightly pinkish instead of a white bill. The lower edge of his dark bib seemed to curve downwards instead of cutting straight across as in *hyemalis*. He was often attacked by our home Juncos as if they recognized his alien character, but as the group was very quarrelsome I can not state positively that he received more vicious thrusts than the others although this seemed to be the case.

At the Museum of Comparative Zoology, Mr. Outram Bangs and Mr. Ludlow Griscom identified the specimen as Shufeldt's Junco, and I have presented it to the Peabody Museum in Salem for the collection of Essex County birds. It proved to be an adult male. It is a new bird to Essex County and the second record for New England. The first was taken by Albert P. Morse on January 28, 1919 at his feeding station at Wellesley, Mass. and was reported under the name of *Junco oreganus couesi* in 'The Bulletin of the Essex County Ornithological Club,' II, 1920, p. 13. The specimen is now in the collection of the Boston Society of Natural History.—CHARLES W. TOWNSEND, *Ipswich, Mass.*

Abert's Towhee, A New Bird for Texas.—While collecting birds for the study of their ectoparasites about ten miles east of El Paso, Texas, on April 19, 1930, I shot an Abert's Towhee (*Pipilo aberti*). This is the first record of this species for the State of Texas. On April 20 I collected another of the same species near the western edge of the Hueco Mountains, about twenty-five miles east of El Paso. Unfortunately, neither specimen was

preserved, but the identification (based on field notes and measurements) was verified by Dr. Harry C. Oberholser of the Biological Survey.—
HAROLD S. PETERS, *Bureau of Entomology, Washington, D. C.*

Varied Bunting in New Mexico.—Throughout the week of July 20–26, 1930 the Varied Bunting (*Passerina versicolor*) was frequently seen and heard in Rattlesnake Canyon, approximately thirty-five miles S. W. of Carlsbad, New Mexico. Two males and two females were collected at this time. This is not only a new species for New Mexico, but is also a considerable extension of its range as given in the 1910 A. O. U. 'Check-List.'—
H. WALLACE LANE, *Museum of Birds and Mammals, Lawrence, Kansas.*

Second Occurrence of the Snow Bunting in South Carolina.—The second record of the appearance of the Snow Bunting (*Plectrophenax nivalis nivalis*) in South Carolina was made on December 21, 1930 on Morris Island at the entrance to Charleston Harbor, when two specimens were procured. The birds belonged to a flock which numbered about six or eight individuals and which was seen at 11 a. m. on the hard sand of the sea beach. Upon the approach of Mr. A. B. Mikell and the writer the flock rose at a fair distance and winged its way southward along highwater mark, coming to rest again at the edge of the sand dunes possibly a quarter of a mile away. As the observers approached once more, the feathered wanderers seemed less shy, grouping themselves together in a most sociable manner on a miniature sand ridge and seeming without suspicion. A single discharge, directed at one which had remained separated a short distance from its companions however, resulted in the death of a male and a female.

An interesting incident related to the taking of these buntings was a description made by Mr. Mikell to me of an experience of the previous Sunday, December 14. On this occasion he had gone to Morris Island alone and had anchored his motor boat near the jetty on the front beach. As he was making fast, a flock of small birds "about the size of English Sparrows (*Passer domesticus*) and with a lot of white on them" alighted on the awning frame at the after end of the boat, opposite from where he was, and remained for several minutes. These were, almost beyond question, the same Snow-flakes encountered on December 21, only a few hundred yards from the old anchorage.

In this connection it is recalled by Alexander Sprunt, Jr., who made the first record of the Snow Bunting in South Carolina several years ago, and into whose possession the two specimens recently secured have been given, that his bird also evinced a remarkable preference for a prescribed locality. He saw it one day close to the motor highway in the northern part of Charleston County and on returning the following day for the purpose of taking it, started it from beneath the same bush. The taking of the birds lends strong confirmation to a sight record of three Snow Buntings made on November 12, 1930 in a vacant lot in the city of Charleston, S. C., by Mr. Herbert R. Sass. Mr. Sass flushed the birds near the Battery while riding along the riverfront in his car and the pale brownish plumage heavily

marked with white, together with the size of the birds led him to the conviction that they could be nothing else than Snow Buntings. Since none was secured he did not make the observation public, but there seems little, if any doubt, that his identification was correct. Upon taking flight, his birds headed directly across the Ashley River toward James Island.—EDWARD MANIGAULT, *Evening Post Building, Charleston, S. C.*

Nashville Warbler at Lexington, Virginia.—On September 29, 1930, I collected an immature Nashville Warbler (*Vermivora r. ruficapilla*) in a willow thicket along a stream near Lexington, Virginia, the identification later being confirmed by Dr. H. C. Oberholser. This seems worth recording, for while Miss May T. Cooke in her 'Birds of the Washington, D. C., Region' lists this Warbler as a "tolerably common migrant" it seems to be rare elsewhere in Virginia. This is the first specimen, so far as I have been able to ascertain, to be taken in Virginia west of the Blue Ridge. Dr. E. A. Smyth, Jr., did not meet with it in the thirty-five years of collecting in Montgomery Co. It has been reported a few times from Lynchburg, on the eastern side of the mountains.—J. J. MURRAY, *Lexington, Va.*

Note on Kirtland's Warbler.—On June 2, 1930 being in the Au Sable River district in Michigan, in company with friends having land holdings there, it occurred to me that I might see Kirtland's Warbler, a species with which I had never met. We drove through jack-pine growth to a small lake where the party stopped to appraise it from the land-looker's viewpoint. Immediately I heard an unfamiliar bird song. It was by no means difficult to determine its source nor to identify the author. The party remained by the shore of the lake above an hour. Meanwhile I had seen and heard another male Kirtland's. It was then arranged that I should return to the place in the afternoon and that my friends should pick me up toward nightfall. Hence I had about 5 or 6 hours, altogether, in which to search the comparatively limited cover for evidences of nesting.

It was about 10.30 A. M. when I first entered the field. The birds sang at intervals for the next half-hour. Then they fell silent. In the afternoon they sang but little. About 4 o'clock there was singing, with brief pauses, for the space of five minutes. The birds were quite tame, allowing approach to within six or seven feet. They sounded no alarm notes nor gave any evidence of nervousness or suspicion. They fed much, for the most part near the tips of the lower branches of jack-pine. Occasionally they wagged the tail like the Palm Warbler. There was also much preening.

Their indifference and the fact that diligent search for a nest was unsuccessful led to the conclusion that while these birds had selected their territory actual nesting had not begun. Of the various descriptions of the song that comes nearest to my record of it which is given by Leopold (Auk, vol. 41, p. 50).—EDWARD R. FORD, *Chicago, Ill.*

Carolina Wren in Michigan.—On August 11, 1930, about seven in the morning, I heard the unmistakable song of the Carolina Wren (*Thryo-*

thorus l. ludovicianus) about two miles north of Frankfort, Benzie County, Michigan. I followed the song and soon saw a pair of the birds. I was able to approach within twenty-five feet of them and see their markings distinctly. I have become familiar with this Wren, having seen and heard it several times in Wilmette and often in Tennessee, and I am certain that there is no mistake about the identification.—DAVID E. DAVIS, *Wilmette, Illinois*.

Hermit Thrush Feeding on Salamanders.—I have heard and read of a few instances in which Hermit Thrushes fed their young salamanders, but in July of this past summer I became a witness to the operation. In the Allegany mountains of the western part of New York state I discovered a nesting pair of exceedingly tame Hermit Thrushes. After my third day of observation the female fed her young while she was perched on my right fore-finger (along the rim of the nest). From such close quarters I had a good chance to recognize the food given to the young. I should say that on fully one-quarter of the trips made to the nest bringing food—male and female fed—salamanders were brought. I recognized both the Allegany and Red-backed salamanders in the menu. On one day when a Sharp-shinned Hawk flew low overhead, the female in excitement dropped to the forest floor a living but much-bruised Allegany salamander. I noticed that during the hotter parts of the day fewer salamanders were brought and attributed this to the fact that the heat had driven the salamanders deeper under cover.—COIT M. COKER, *Chapel Hill, North Carolina*.

Connecticut Notes.—In the October, 1930 issue of 'The Auk' I note that Mr. Devere Allen of Little Forest, Wilton, Conn., confirms previous observations on the undoubted increase of Killdeer Plovers throughout this section of the State. My business takes me into the field all through this region; so for the past years I have happily witnessed the Killdeer's increased presence in Branchville, Ridgefield, Wilton, Westport, Norwalk, Darien, Stamford, and New Canaan.

I have also observed for the past three seasons, at Forestby; a male Blue Gray Gnatcatcher (*Poliophtila c. caerulea*) on the following dates May 12, 1928; May 4, 1929; and April 27, 1930. My attention was first attracted to this unusual visitant by its unceasing activity; an almost constant darting out from the limbs of small trees after insect food. As Neltje Blanchan puts it the bird resembles in manner and form a miniature catbird.

Apparently the most identifying feature was its white outer tail quills very prominent in its warbler like antics.

It would be very pleasing to know if others have noticed this bird; as in the "Birds of Connecticut" it is listed as a very rare summer visitant.

I was not favored with any call or song note from the bird, probably because of its smallness in volume; as Nuttall says it is scarcely louder than the squeak of a mouse.—BEAUMONT J. MOREHOUSE, *Branchville, Conn.*

Notes on the Breeding-Birds of Orange County, N. Y.—In an effort to further a plan of the Linnaean Society to obtain as much detailed

and accurate knowledge concerning the breeding-birds of particularly the more outlying and less frequented areas of the New York Region, a preliminary survey of Orange County, New York, was undertaken in mid-June 1929 and a second, thoroughly organized trip was made to this area on June 22, 1930. On this latter date, three observers worked west along the southern end of the County from Washingtonville through Florida (New York) to Port Jervis, thence through Neversink Valley to Cuddebackville and north along Neversink Valley to the County line, on east side of valley; thence on west side of valley to Big Pond back through Otisville to Middletown, across to Campbell Hall and south to Goshen. An effort was made to cover as many typical localities as possible in the relatively limited time at our disposal. The data on breeding-birds, while probably not exhaustive, are nevertheless representative and of interest by comparison with nearby areas in New Jersey (such as the Walkill River Valley), which had been previously "worked" in the breeding season. The list of 93 species observed in Orange County, on June 22, 1930, is probably of no great significance but is somewhat indicative of the type, and relative variety and abundance of the local bird-life.

Much of Orange County is composed of rolling uplands and high, rich pasture-lands and consequently, it is not surprising to find that the Upland Plover is a fairly common species in that region, in June, though rare and for the most part, absent, in New Jersey, immediately adjoining. On June 22, 1930 a total of ten birds of this species was observed though this number may possibly include birds of the year. The significant fact, however, is that if the results of the two trips, i. e. 1929, and 1930, are combined, it is apparent that the species was observed in no less than six different and more or less widely separated localities though chiefly in the neighborhoods of Middletown, Goshen and Washingtonville, Orange County, New York.

The only country, evidently suitable to the northern Warblers and Canadian species generally, in the County, is to be found in the extreme north-west edge, i. e. north and west of Port Jervis, principally about the Neversink Valley. It is here, if anywhere, that the locally necessary condition of altitude with its corresponding effect upon flora and fauna, exists. The following species generally regarded as more or less distinctively Canadian, were observed on June 22, for the most part in song; it is quite possible or even likely that others will eventually be discovered in this portion of Orange County, and possibly elsewhere within the County limits: Black-throated Blue Warbler, Magnolia Warbler, Blackburnian Warbler, Canada Warbler.

It is of interest to note that the Short-billed Marsh Wren is an abundant breeder in certain of the river swamps, such as that of the Walkill River, and is generally a commoner and more universally distributed species, in Orange County, New York, than in the major portion of New Jersey with which we are familiar. A pair of Tufted Titmice, feeding a brood of young, discovered at a point about nine miles north of Goshen, apparently repre-

sents a considerable extension of the known breeding range of the species, in the New York Region, though perhaps a sporadic instance.

The following is a list of the more interesting species recorded on June 22, which, for obvious reasons, does not include those treated in detail above: Pied-billed Grebe, 1; Great Blue Heron, 3; Sora, 1; Ruffed Grouse, 3; Turkey Vulture, 4; Northern Pileated Woodpecker, 1; Red-headed Woodpecker, 8; Orchard Oriole, 2; Purple Finch, 1; Grasshopper Sparrow, abundant; Henslow's Sparrow, 5; Purple Martin, 3; Cliff Swallow, 15; Tree Swallow, 4; Rough-winged Swallow, 1; Northern Parula Warbler, 1.—IRVING KASSOY, JOHN AND RICHARD KUERZI, *New York City*.

Further Notes from the Savannah River Entrance.—Several of the low marsh islands near the mouth of the Savannah River, are in a doubtful status as to whether occurrences should be recorded as from South Carolina or Georgia. After talking the matter over with the only two bird students giving more than a passing interest to the area, it was decided to record all occurrences as given below, until some better method or authority appears. The two persons mentioned above are Mr. W. J. Erichson and Mr. Gilbert R. Rossignol.

South Carolina: Jones Island, Long Island Fill, Horseshoe Shoals.

Georgia: (a) All the islands on the south side of the river, including: Cockspur Island, Long Island, Maurice Island, Elba Island. On the north side of the river: (b) Oysterbed Island, (c) The entire main river channel, including both north and south jetties.

The Long Island Fill is a recent engineering work connected to Jones Island and will soon reach to Oysterbed Island. It is about 15,000 ft. long, from 300 to 600 feet wide at high water, and has an average elevation of 12 feet above low water. The north side is concave, and between the Fill and the long point of Jones Island is a mud flat roughly oval one mile by two in size, that has come to be a great feeding place and high water rendezvous of many different water birds. Several small sand bars reaching out on either side afford night resting places, and a half-submerged jetty or so attracts the oystercatchers and ruddy turnstones.

Oysterbed Island was first what the name states, an oysterbed in the middle of the Savannah River, but changes of channel, and material pumped on it has increased it to perhaps 4,000 ft. long by 3,000 feet wide, and an elevation of 20-odd feet at low water. This sandy hill is the nesting ground for colonies of Least Terns, Black Skimmers, and Willets, and Wilson's Plover in abundance, with a pair or so of Oystercatchers, also nest here each year.

Phalacrocorax carbo. CORMORANT. A single bird found sitting on the north jetty was shot as it flew, and proved to be a male in good flesh and plumage. The skin was later sent to the Charleston Museum, and Mr. Alexander Sprunt, Jr., agreed in the identification. He mentions the two records for South Carolina mentioned by Wayne in his 'Birds of South Carolina' and by Bent in his 'Life Histories.'

An inquiry of Mr. Arthur H. Howell about the Biological Survey's records brings this answer: "There are no definite records in our files of *Phalacrocorax carbo* from Georgia—only the general statements of Nuttall and of Ogilvy-Grant (Catalogue Birds, British Mus., vol. 26, p. 340) mentioning 'Georgia' in the range."

This appears to be the first authentic record for the state.

Spatula clypeata. SHOVELLER. Several writers have described this species as entirely a fresh water Duck, but in this particular place (the mud flat back of Long Island Fill) it lives throughout the winter, feeds, sleeps, and spends twenty-four hours of the day, unless it leaves at night for the old rice-fields and preserves up the river. It is seldom that a flock is seen in flight at evening. They do not feed so much by "tipping-up" as by walking out on the mud and dredging up the small drains exactly like barnyard Ducks do. The flat is an excellent protection because of the bottom of treacherous mud, so flat that the tide which never covers it deeply, fall very fast (and it is no pleasant matter to be left aground until the next tide) and also because the shallow water stops the shooting from outboard motor speed boats. If disturbed the Shovellers fly out a mile and light in open water, then drift back toward the feeding place. On first arrival about October 25, they are not at all shy, but by December 1 are quite wary, and well know how to evade the hunter.

Chen hyperborea subsp.? ? SNOW GOOSE. While fishing on an oyster reef off Turtle Island, three miles from the Savannah River, in South Carolina, a single Snow Goose lit behind the reef from us. After a minute or so it flew in a half circle within fifty yards and headed out to sea. It was unmistakably a Snow Goose, every detail of the head was plain at the short distance with binoculars. It is of course impossible to more than make a guess as to the subspecies, but the impression was that the bird was shorter than the double crested cormorants (*Phalacrocorax auritus auritus*) of which species, flocks were in sight most of the day.

Branta canadensis canadensis. CANADA GOOSE. This appears to be nearly the southern, or perhaps more correctly the southeastern limit for the Canada Goose.

For several years I have watched and listened for them, and have often mistaken flocks of Double-crested Cormorants when just in sight, but have only four dates to record. On October 21, 1927, seven flew over, heading south and honking among themselves as usual. Again on October 25, 1927 four lit in the river near old Ft. Jackson, about three miles east of Savannah. No others were seen or heard until October 25, this year, when a flock of about thirty came over heading southsouthwest. Another flock was heard at night over the Jones Island marshes on November 6.

Recurvirostra americana. AVOCET. At the risk of mentioning one species too often it seems to be wise again to record the Avocet from this place.

Records for this species from the South Atlantic coast are rare, in fact, there seems to be but one other record from Georgia than mine, and but one from South Carolina since the time of Audubon.

This year a single bird was seen several times and finally taken on October 5. It was a female, and a young bird.

Then on November 18, two flew over the dredge towards the Long Island Fill, and two, perhaps the same, were seen quietly resting near high water mark on the Fill, on November 24.

Another single bird was collected in the same locality the day before Christmas, and showed plainly the "pinkish buff" ends of the feathers of the back that are black in the adult bird. This one was a male.

The bird taken near here, but in Georgia, on March 7, 1929, was sent to the Charleston Museum, for their collections, and Mr. Sprunt writes me that he considers this a bird of the previous year.

With this scant evidence it is easy to guess that (perhaps) the appearance of this species so far from its normal range, is similar to the wanderings of the Little Blue Heron in the white plumage, as recorded so often the last few years. However, later evidence may prove this a poor guess.

Numenius americanus. LONG-BILLED CURLEW. This species, once so plentiful, has rarely been reported from the coast of South Carolina and Georgia during late years. Mr. Alexander Sprunt, Jr., writes me that the only recent record from South Carolina is one seen by Mr. Wayne at Porcher's Bluff, on January 10, 1927. Mr. Wayne had not seen any others since 1899, as he states in his 'Birds of South Carolina' (1910).

My first sight of the species was in June, 1923 on Hunting Island, South Carolina. The fact that there were also smaller Curlews in the flock, makes it more certain that it was the Long-billed Curlew that was seen. The others must have been *hudsonicus*.

Since then one or a pair have been seen or heard nearly every year flying over the Savannah River, usually in June. None have been seen other than flying over.

This year, perhaps because of the number of visits to the place chosen as a resting place during high water when the mud flats were covered, or as a roosting place at night, more than ever have been seen. It is of course impossible to say just how many birds stayed for a time or if there was a constant change. I believe that there were seven different birds, seen from October 5 to 25, but not more than three at a time.

A fat female was collected on October 10, and another, also a female on the 20th. Three were seen the last date (the 25th) mentioned.

The birds were all very shy, and seemed to prefer the company of the Black-bellied Plover to the usual flock of Black Skimmers, Laughing and Ring-billed Gulls, Royal and Forster's Terns, Willets, etc., that were always present on the various sand bars.

A comparison with the few Marbled Godwits present showed no plain difference in size, but in flight the Curlews showed much lighter underparts. When standing both of these, our largest brownish colored shore birds, appeared larger than the Ring-billed Gulls, though it may have been due to the longer legs.

It should be explained that the skins taken and all others seen are properly South Carolina records.

Asio flammeus. SHORT-EARED OWL. Since about November 10, 1930, there has been an unusual number of the "sand-hill" Owls, as they might well be called, both on Long Island Fill, and on Oysterbed Island, while in the salt marshes of Jones Island several can be seen at dusk, taking up the hunt over the precise territory covered by the Marsh Hawk during the day.

For several winters I have made trips over these places during the winter months, and have never seen more than two of these Owls in any one day, but November 24, while walking up and back on the Fill, about four miles in all, at least thirty Owls flushed from the grass, I suspect that there were about eight or nine birds, and that they kept moving ahead to the end, then lit behind, and again flushed on my return trip. Three were seen at once, and on December 14, five birds flew up and were in sight at once on Oysterbed Island. The reason for their continued presence may perhaps be in some sudden increase locally of the rodent population, if so, it has not come to my notice.—IVAN R. TOMPKINS, *U. S. Dredge "Morgan," Savannah, Ga.*

Notes from Wisconsin.—*Oidemia americana*. AMERICAN SCOTER. On Nov. 2, 1930, Mr. L. D. Atkinson of Madison shot on Lake Kegonsa two Ducks that were new to him. He had retained but one bird, an immature male Scoter, which is now in my possession. The second bird, stated to have been identical with the first, had been dressed for the table before it could be rescued. This appears to be the first record for Dane County.

Lobipes lobatus. NORTHERN PHALAROPE. I collected a female in full breeding plumage from a flock of four, near Madison, May 24, 1930.

Micropalama himantopus. STILT SANDPIPER. It now appears that this species is a regular migrant in the Madison region, especially during August. In 1930, one was seen Aug. 16, one Aug. 29, and on Aug. 17, while on a field trip with Mr. John Main, eleven were found at a pond near Oregon.

Ozyechus vociferus. KILLDEER. A second winter record for the Killdeer was obtained on Dec. 28, 1930. This bird was found in the same spot near Madison where one had been found a year previously ('The Auk' 47, 1930, 424).

Cryptoglaux acadica acadica. SAW-WHET OWL. Mr. Herbert Stoddard found a Saw-whet Owl near Pine Bluff, Dane Co., March 15, 1930. On the following day, while I was in the field with Mr. Stoddard, he found another in a small cedar, in the southwestern corner of Columbia County, near the Dane County line.

On Oct. 3, 1930, I received from Prof. Leon J. Cole a Saw-whet Owl that he found in the road, a mile north of the Pattison State Park, Douglas Co., Sept. 29, 1930. Owing to crushing by automobiles and the delay in transit, the specimen was in no condition for preservation.

Nuttallornis borealis. OLIVE-SIDED FLYCATCHER. The results of the season of 1930 cause me to waver in my opinion that this species is an un-

common migrant. In the Madison region, I obtained the following data: one was seen May 25; a male was taken Aug. 16; and one was seen on each of the dates Aug. 23, 24, and 29. I also saw one near Monroe, Green Co., Aug. 29. The fall migration at Madison probably lasts until the second week of September since this species remains in northern Wisconsin into September. I found it at Hazelhurst, Oneida Co., Sept. 8, 1928, and Sept. 1, 1929.

Loxia leucoptera. WHITE-WINGED CROSSBILL. On Nov. 9, 1930, Mr. Paul Errington found the remains of a bird of this species in a grove of pines west of Prairie du Sac, Sauk Co. I went with him to this place on Nov. 15. Thirteen birds were seen, and a male and a female were taken.

Zonotrichia leucophrys gambeli. GAMBEL'S SPARROW. Recently, while examining some of my skins, I concluded that an immature male which I had taken at Madison, Oct. 16, 1927, belonged to this race. The identification was confirmed by Dr. H. C. Oberholser.—A. W. SCHORGER, 2021 Kendall Avenue, Madison, Wisconsin.

Notes from Stutsman County, North Dakota.—During the past season the writer in observing the bird life of Woodbury Township in central Stutsman County obtained a number of sight records of the rarer species of land birds found in North Dakota. Those which may be of some interest to others will be here given.

Coccyzus americanus americanus. YELLOW-BILLED CUCKOO. From July 25 to 29, 1930 a bird of this species was frequently seen and heard about our grove. The yellow tipped under mandible was plainly seen on a number of occasions thus establishing one of the few sight records for the species in North Dakota.

Icterus spurius. ORCHARD ORIOLE. Throughout the period June 6 to 12, 1930 a male in the plumage characteristic of the first year held the undisputed lead in our local bird chorus. Since no response came to his vocal efforts, he went elsewhere in search of a mate. A mature male recorded June 16, 1928 is the only specimen previously noted since 1926 at which time I first began to keep records.

Icteria virens longicauda. LONG-TAILED CHAT. Perhaps the very few birds noted in this locality have been stragglers from the Missouri River valley to the west where the species is said to be not uncommon. Only two have been seen here, one May 21, 1930 and another (both were males) September 22, 1929.

Oroscoptes montanus. SAGE THASHER. An individual was seen twice on April 24, 1930. With the aid of glasses the grayish brown upper parts, grayish underparts streaked with dark brown, and the long brownish gray tail, having white outer corners noticeable in flight, were points noted as characteristic. The bird's song, a rambling succession of trills, warbles and miscellaneous notes more or less musical and given from the chimney top of an abandoned farmhouse, suggested that of the Brown Thasher quite strongly though greatly lacking in the volume so pronounced in the

latter's song. The species is rare in North Dakota, there being only one published record, insofar I have been able to learn.

Nannus troglodytes hyemalis. WINTER WREN. A lone bird was seen flitting about the undergrowth October 5, 1930. This species is seldom seen in this state according to common experience.

Regulus satrapa satrapa. GOLDEN-CROWNED KINGLET. The only specimen I have seen here was observed on October 5, 1930. The bird was a fine female and permitted close approach and continued study without taking fright. This species is also rare though the Ruby-crowned is not uncommon during migration over the state.—ARCHIBALD JOHNSON, *Route 2, Jamestown, N. Dakota*.

More Audubon Copper-plates.—In 'The Auk' for October, 1930, I reported the Audubon copper-plate owned by Miss Mary Parsons of Lenox, Massachusetts. On December 7 Miss Parsons wrote me asking if I knew of a plate owned by Mrs. Shelton E. Martin of Peapack, New Jersey. A few days later I received a letter from Mrs. Martin reporting not one but four unrecorded Audubon coppers. Mrs. Martin wrote that her father, Capt. John S. Barnes, was a personal friend of members of the firm of Phelps Dodge & Co., and received these copper-plates as a gift from the firm.

Mrs. Martin now owns Plate No. 37, the Golden-winged Woodpecker, and Plate No. 167, the Key West Pigeon. A third plate, No. 21, the Mockingbird, was presented by Capt. Barnes to Groton School, Groton, Massachusetts, through the interest of Mr. S. Warren Sturgis, a master in the school and brother-in-law of Mrs. Martin. It now hangs in the library at the school, and brings the number of plates located and recorded to forty-five. Capt. Barnes also presented a copper-plate to his friend, former Mayor Latrobe of Baltimore. This was No. 12, the Baltimore Oriole, and was believed by Mrs. Martin to be on exhibition in the City Hall at Baltimore, but I am unable to locate it at present. Both Mrs. Robert Lacy and Mr. S. E. Perkins, III, of Baltimore, have given much time to an effort to locate this last plate, but without success. Apparently Mr. Latrobe considered the plate as a personal gift from Capt. Barnes and retained it upon his completion in 1895 of several terms as mayor. Mayor Latrobe died in 1911, and none of his heirs whom we have located has any knowledge of this copper-plate, and it is seemingly lost or destroyed.

Miss Parsons has also informed me of a change in ownership of Plate No. 391, the Brant Goose, recorded by Mr. Ruthven Deane in 'The Auk' for 1908, as the property of Mrs. William Church Osborne, of New York City, and recently presented by Mrs. Osborne to the new museum of the Pleasant Valley Bird and Wild Flower Sanctuary at Lenox, of which Miss Parsons is a trustee.—JOHN B. MAY, *136 State House, Boston, Massachusetts*.

RECENT LITERATURE.

Bannerman's 'Birds of Tropical West Africa.'—It seems but a few years ago that our knowledge of African birds was restricted largely to the coastal districts and the publications that had appeared were all in the form of technical annotated lists. Now with the opening up of the country travel through much of the interior is an easy matter and our knowledge of its bird fauna advances by leaps and bounds, while every year sees the publication of a thoroughly up to date volume on the birds of some portion of the "dark continent."

The latest of these, which promises to outdo all of them in completeness and appearance, is Bannerman's 'Birds of Tropical West Africa' the first volume¹ of which is before us. West Africa made famous by the exploits of Du Chaillu and by John Cassin's reports on the Du Chaillu bird collections on the Ogowe, Muni and other rivers and later noted for the discoveries of George L. Bates, has remained perhaps the least known of the various regions of Africa and rich as its avifauna has been shown to be there was always opportunity of striking discoveries. And now we have a work as complete in every detail as a modern ornithology for one of the United States or for some country in Europe. Splendidly printed and illustrated, with text figures and colored plates by the best artists; up to date nomenclature with important synonymy, descriptions, notes on field identification, range, habits, etc., and with keys and detailed explanation of their use, and a preface covering zoogeography, history, glossary of terms, etc. In fact, as an editor once said of a book sent for a review, it is an unsatisfactory volume inasmuch as we can find nothing wrong with it!

We are indebted to the four West African Colonial Governments for the publication of this admirable work, the entire expense having been borne by the governments of Gambia, Sierra Leone, Gold Coast and Nigeria, as explained in a preface by Lord Passfield, Secretary of State for the Colonies. The limits of the work are wisely extended to take in the entire coastal region from the Senegal River to the Congo, extending east to longitude 20° E. and including the islands from the Cape Verde group to the Gulf of Guinea. The main life areas of West Africa based on vegetation are (1) the mountains of Cameroon etc., (2) the Sahara Desert, (3) thorn scrub region, (4) grass woodland (tree-savanna), (5) tropical and equatorial forest and (6) coastal mangroves.

These are susceptible of further subdivision on the basis of bird popula-

¹ The Birds of Tropical West Africa. With Special Reference to those of Gambia, Sierra Leone, the Gold Coast, and Nigeria. By David Armitage Bannerman. With Preface by The Right Honorable Lord Passfield, Secretary of State for the Colonies. Maps and Coloured Plates. Volume one. Published under the Authority of the Secretary of State for the Colonies by the Crown Agents for the Colonies. 4 Millbank, Westminster, London, S. W. 1. 1930. Crown 4to. pp. i-lxxv + 1-376. Price 22s. 6d. net. Post 1s. 6d.

tion and our author says that each is characterized by a definite association of species. "It can readily be understood," he continues, "that the birds that have their habitat in the dense forest country would not long survive if transported to the inhospitable wastes of the Sudanese arid belt, and vice versa, where conditions would be entirely foreign to them; but it is not so apparent why the birds of the Upper Guinea or Ubangi Savannas should show such marked differences from those of the Lower Congo Savanna, or why the birds of the Upper Guinea forests should differ in marked degree from those of the Lower Guinea forest." Evidently there is still much to be learned about the history and distribution of the West African avifauna even after the present day facts are presented. The main text of the present volume covers the Struthioniformes, Colymbiformes, Procellariiformes, Pelicaniformes, Ciconiiformes, Anseriformes, Falconiformes, and Galliformes, including about 190 species and subspecies; there are eight colored plates from paintings by the late Major Henry Jones, two maps and 119 text figures from drawings by H. Grönvold, Roland Greene, F. W. Frohawk, and W. P. Tenison.

We shall look forward to Mr. Bannerman's succeeding volumes with great interest.—W. S.

Kleinschmidt's 'The Formenkreis Theory.'—We are under obligations to Rev. F. C. R. Jourdain for his painstaking translation of Kleinschmidt's volume¹ on the 'Formenkreis Theory,' but even with the care taken to present the author's arguments and expressions as nearly verbatim as can be done in a translation, we remain more or less dazed by a mass of verbiage and somewhat in doubt as to just what the author is endeavoring to place before us.

There would seem to be two principal problems discussed (1) an attempted explanation of descent more or less at variance with the accepted theory of evolution, and (2) the use of the "Formenkreis Theory," there explained, in practical nomenclature.

In the discussion of the theory as an explanation of descent we are taken back to the writings of Kant in 1775 and we must confess our inability to see in what way Dr. Kleinschmidt's views differ from these or just what claims he has to originality in his presentation of the theory. Our author sums up his discussion of the errors in the "old theory of evolution" by stating that the Formenkreis Theory "upholds the indications found in nature as to independent sources of life," yet he admits that their may be a relation between the several independent creations ("between root and root") but it is "quite a different kind of relation than between their com-

¹ The Formenkreis Theory and the Progress of the Organic World. A Re-casting of the Theory of Descent and Race-Study to Prepare the Way for a Harmonious Conception of the Universal Reality. By O. Kleinschmidt, Dr., h. c. Translated by the Rev. F. C. R. Jourdain. With 16 plates from photographs and 53 text figures by the author. London, H. F. and G. Witherby, 326 High Holborn, W. C. [1930] pp. 1-192. Price 10s. 6d. net.

ponent parts" ("between two leaves from the same root"), and when he comes to proving his contention he states that "the whole matter is still hidden in Democritus' deep spring" and that we cannot "expect anyone to solve these darkest secrets of nature before science can achieve it." Wherein such statements are at variance with the generally accepted theory of evolution it is difficult to see.

In the consideration of the practical application of names on the Formenkreis Theory the idea of separate entities is still further emphasized and the "species," as our author understands it (i. e. his Formenkreis), consists of not only the various subspecies usually allotted to it but also many forms now recognized on all hands as species which are "degraded" into subspecies solely because they replace one another. In other words the Formenkreis as he explains it is composed of forms which "must exclude each other geographically and also replace one another," and all forms which fall under these conditions belong to the same Formenkreis and are to be regarded merely as subspecies regardless of intergradation or any other factor. Nevertheless when he comes to arrange forms (subspecies and nearly related species) in a Formenkreis we find our author including some that do not accord with his dictum and to explain their inclusion he formulates other dicta the accuracy of which he does not prove. He makes, for instance, one Formenkreis of the House, Italian, and Spanish Sparrows although representatives of two of these often occur together and his proffered explanation, without proof, is that when one race invades the territory of another "it is either attacked by the neighboring race or absorbed by interbreeding," but apparently recognizing the weakness of this explanation he adds in a foot note "exceptions in which the process is protracted may easily be recognized as such." But naturally we ask: How?

We are forced to admit that the criterion of intergradation for distinguishing species from subspecies is not always practicable and that in many cases we accept "replacement" and "exclusion" as indicators of subspecific rank where actual intergradation has not yet been demonstrated, but to degrade to subspecies a lot of perfectly good species which offer no suggestion of intergradation, simply because they replace one another seems to serve no good purpose, and the whole scheme, just as in the case of the intergradation criterion, resolves itself into a question of personal opinion. It is interesting to notice moreover that many of those who apply the Formenkreis idea do not go so far as to make trinomials for the "degraded" species but quote both trinomials and binomials as components of their Formenkreises.

That the Formenkreis so used may be convenient in some cases in the sense that we use "Group," or "Subgenus," we do not deny, and we also endorse the author's statement that while climatic effects on the individual, such as bleaching by the sun, are "aptly comparable to an evanescent coat of paint. Racial characters are not coats of paint, but an inheritable property." (cf. Prof. Sumner's experiments in rearing the subspecies of *Peromyscus*.) But we interpret this fact to mean that the difference between

species and subspecies (Formenkreis and Race) is merely one of degree and we have in nature forms differing by every conceivable amount of difference from very slightly differentiated geographic races to strikingly different species, their grouping into genera, species and subspecies (or into Genera, Formenkreises and Races) being largely one of personal opinion, aided often by breaks in the series caused by the extinction of connecting links, or possibly by the sudden emphasis exerted by environment, or otherwise, on some usually dormant or recessive character. Also that the subspecies may in course of time, quickly or slowly, become a species through isolation or other cause.

Dr. Kleinschmidt's method of presenting his theme is peculiar and much space is devoted to considering objections to the Formenkreis Theory for which objections,—so far as we can see, the author himself is responsible, standing, as it were, as council for both sides of the case! All through the book, too, he seems to consider himself as the originator of a revolutionary theory of creation a claim that hardly seems justified.

The careful distinction of races from sports and other forms of individual variation seems beside the point as such things are not recognized nomenclatorially under any system, and also the explanation that the Formenkreis (literally "form circle") is really not a circle but a union of forms distinct from other unions, the range of which may be anything but circular—we can hardly imagine anyone thinking that a circle, a square or any other geometrical figure was in any way concerned in the discussion!

The book is well gotten up with many interesting illustrations but we regret that the author has not devoted more time and effort to a clearer presentation of his theory and dispensed with much unnecessary praise of what the Formenkreis Theory has accomplished, and will accomplish, in recasting biological education and research—and even the public museum!—claims which we fear his readers will hardly endorse.—W. S.

Belcher's 'Birds of Nyasaland.'—This well gotten up book¹ consists of an annotated list of the birds of Nyasaland based primarily upon the observations of the author during seven years residence in the country. The nomenclature follows that of Sclater's 'Systems' and there is a brief description of each species with keys, sometimes to genera sometimes to species, translated from Reichenow's great work on African birds. The "annotations" are very full and discuss the abundance, distribution and peculiarities of each species. Our only criticism is the use of abbreviations of dates. For instance "21. xi. 26." is very little shorter than "Nov. 21, 1926" and the latter is far more satisfactory. Fortunately this usage is resorted to in only part of the text.

¹ The Birds of Nyasaland. Being a Classified List of the Species Recorded for the Nyasaland Protectorate up to the Year 1930, with brief descriptions and field notes, and a map. By Charles Frederic Belcher. London: Crosby Lockwood and Son. Stationers' Hall Court, Ludgate Hill, E. C. 4. 1930. pp. i-xii + 1-356. Price 15 shillings, net.

Nyasaland is a long narrow country lying west and south of Lake Nyasa, projecting down into Portuguese East Africa and bounded above by Northern Rhodesia and Tanganyika. It is roughly 600 miles in length and 100 miles wide and possesses a variety of habitat as may be inferred from the fact that Mr. Belcher lists no less than 521 species of birds. The water birds, gallinaceous species and birds of prey number together 164 species, the Doves, Parrots, Cuckoos, Owls, etc., 117, and the Passeriformes 241, all but two of which are Oscines.

Mr. Belcher has made an important addition to the rapidly growing literature of African ornithology and his book should prove of greatest interest to settlers as well as to more serious bird students.

It is curious to read in his discussion of English names for the birds that, as recently as five years ago, many of them had never been seen by a white man, while in regard to identification he says most truly "I have never yet met with a book description which, without more, would enable recognition on the brief glance which is so often all one gets of a winged passer-by. In time a bird-lover comes to be able to tell a great many species, even in flight, and at some distance: *how* it is done I have not the knowledge of mental processes to say." How many times have we pondered upon this same question!

Beside the English names those given by the native tribes are added and there is an excellent map of the Protectorate prepared by Mr. C. A. Higman. We should have liked to have had a discussion of the faunal areas of the country and their more characteristic species, as such information is most helpful in these days when zoogeography plays such an important part in our systematic work.—W. S.

Nicoll's 'Birds of Egypt.'—It was our privilege in 1920 to review in these columns Michael John Nicoll's 'Hand List of the Birds of Egypt.' We could not but feel that this excellent work by no means exhausted his knowledge of the subject but his untimely death in 1925 seemed to preclude the possibility of a supplementary and more pretentious volume. However it seems that after his return to England he had been making preparations for exactly such a work, and thanks to the support of the Egyptian Government and the sympathetic and painstaking labors of his friend Col. R. Meinertzhagen we have before us the completed work of Nicoll in Egypt, in the form of two portly quarto volumes¹ beautifully gotten up constituting a well deserved memorial to a true student of nature.

The manuscript left by Nicoll covered about two-thirds of the Passeres. This has been much amplified by Col. Meinertzhagen and text for the remainder of the species added, while the limits have been extended to include Sinai, and chapters on relevant subjects as well as a full bibli-

¹ Nicoll's *Birds of Egypt*. By Colonel R. Meinertzhagen, D. S. O. Published under the authority of the Egyptian Government. Hugh Rees Ltd., 5 & 7 Regent Street, London, S. W. 1. 1930 Vol. I, pp. i-xvi + 1-348. Vol. II, pp. 349-700.

ography have been added. So the work as published becomes as much Meinertzhagen's as Nicoll's.

The supplementary chapters cover respectively (1) Origin of life in Egypt, (2) Migration, (3) Birds of Ancient Egypt (by R. E. Moreau) and (4) Bird Protection in Egypt.

Under the first heading the physical geography of Egypt is discussed and the country divided into six regions: the Mediterranean coast, the Nile Valley and Delta, the Desert, the Western Oases, the Sinai Peninsula and the Red Sea. Of these the desert as Col. Meinertzhagen says is the dominating factor of Egyptian life and we cannot refrain from presenting the picture that his facile pen has drawn: "The attraction of the desert," he says, "is that of woman for man. It is when she is silent that she is most attractive, most elusive, most seductive. It is when she is boisterous that one hates her most. Life with her is one continual dream of romance, for she has the power of making the traveller feel he is her sole admirer, her lonely visitor. She attracts with a magnetism which is irresistible, never assumes familiarity, never permits a liberty, gives freely of her charms, which never fail to please, and one leaves her wishing for more. She calls again and one cannot refuse. She takes and gives of her best. Cruel and merciless to those who play with her, generous and even gracious to those who love her and dwell with her. To ignore her is to court disaster. Her fancies and follies are various and numerous, her surprises never failing. One cannot linger or loiter in her arms. She demands efficiency and energy, character she respects and repays. To lassitude and carelessness she meets out death in its most hideous form." American ornithologists might easily imagine that they were reading one of the late Elliott Coues' sketches! The geological history of Egypt is next considered and the alternations of desert and pluvial conditions as well as the advent of the Nile and the formation of the Delta. Evidence is presented to suggest that the present deserts are older than the Delta and that the oases are older than the desert, being relics of a former widespread era of pluvial conditions which has everywhere else been superceded by the desert.

Northern forms, it is suggested, were driven into Egypt from the north during the Glacial Period and tropical species intruded from the south before the deserts were formed, traces of both of which elements are still to be found in the fauna and flora of the oases, while the Nile brought with it from the south a luxuriant flora with accompanying animal life which with the encroachment of recent desert conditions has been largely exterminated. The strikingly varied physical conditions of the present and past in Egypt certainly offer wonderful opportunity for speculation.

The chapter on migration is replete with interesting discussion both of the general problem and migration in Egypt. Col. Meinertzhagen considers that adults usually precede the birds of the year in migration which corresponds with our experience in America but we cannot agree that molt never takes place during the migratory flight as we have found many Sanderling in full molt of the primaries on the New Jersey coast in August

(see Proc. Acad. Nat. Sci. Phila., 1897, p. 368). Col. Meinertzhagen also includes in his discussion of the origin of the Egyptian fauna an interesting consideration of evolution and the ways in which it operates, which we cannot for lack of space consider here.

Mr. Moreau identifies some 90 species of birds in the paintings and carvings on ancient tombs, etc., and considers that the most potent factor in the extermination of many of these was the disappearance of the papyrus thickets with the increasing aridity of the country.

The work proper is a very fully annotated list of the birds of Egypt and under each species we find reference to the original description and synonyms, a full description of the several plumages and paragraphs on distribution, nidification and field characters.

The illustrations are numerous including many text figures, thirty-eight full page plates in color and three maps. The artists are G. E. Lodge, Roland Green and H. Grönvold. There is also a frontispiece portrait of Mr. Nicoll with a brief biography.—W. S.

Lynes' 'Review of the Genus *Cisticola*.'—The Grass-warblers of the genus *Cisticola* have long been a stumbling-block to systematic ornithologists. Although in most cases easily distinguished in life by their habits and habitats, many of these little birds display a variety of plumage, seasonal and sexual, which has led to the naming of more species and sub-species than in reality exist.

During the years 1920 and 1921 Rear-Admiral Lynes made an extended collecting trip to Jebel Marra, an isolated mountain in central Darfur, and in 'The Ibis' for the years 1924 to 1926 he wrote an excellent account of the birds he collected. Seven species of *Cisticola* were obtained and in identifying these he encountered difficulties which necessitated a careful taxonomic study of the genus as a whole. This he reserved for an appendix and in the meanwhile completed his account of the rest of the collection. Then turning his attention to this single genus he began a comprehensive study of all the available material in the combined collections of several of the larger museums of the world. With this unrivalled series at his disposal many of the errors and misunderstandings of the past were cleared up and a provisional classification adopted. Realizing, however, the necessity of a better knowledge of the birds in life in order to elucidate certain problems of relationship, Admiral Lynes then commenced an extended tour of the greater part of Africa with the express purpose of meeting as many species of *Cisticola* in their nesting season as possible. On his return, with much added knowledge, he resumed his study of the museum skins, the outcome of which is a work of 673 pages and 20 colored plates.¹

Unquestionably this represents the most exhaustive study ever made on a single avian genus, and Admiral Lynes is to be congratulated upon the

¹ Review of the genus *Cisticola*. By Rear-Admiral H. Lynes, C.B., C.M.G., M.B.O.U. &c. *Ibis*, 12th series, vol. VI, Supplementary number, pp. 1-673, pls. 1-XX. August 1930.

excellent manner in which he has amassed and reviewed an enormous amount of data relative to the taxonomy and life-histories of the members of this genus whose range, though mostly African, extends to the Palaearctic, Indian and Australasian zoogeographic regions. The plan of the work differs somewhat from the usual stereotyped pattern followed by most systematists and in consequence a study of its structure is necessary before attempting a study of its contents. Perhaps the most noteworthy innovation is the relegation of the full synonymy to a single chapter at the end of the work, which functions also as an index. This may not meet with approval on all sides, but it nevertheless has some advantages.

A chapter of introductory matter is followed, in chapter II, by a check-list of the species and subspecies recognized. New forms are here printed in bold-faced type and rejected names (e. g. synonyms, *nomina nuda*, &c.) are briefly referred to under each species. Forty species and 154 subspecies are recognized, as against 174 species and 54 subspecies described prior to August 1930. Four new species, twenty-four new subspecies and three new names are proposed.

The forty species are arranged in eleven groups, but these are not afforded generic or subgeneric rank. A list of names available in the event of subsequent "splitting" is given on page 26. Five species which have until now been placed in the genus *Cisticola* are disposed of as follows:—three (*C. melanura* Rchw., *C. angusticauda* Rchw., and *C. alticola* Shell.) are grouped near *Apalis* and its allies; one (*C. incana* ScL. & Hartl.) is made the type of a new genus, *Incana* (p. 638); and *C. flavigularis* Sharpe is considered a *nomen nudum* and probably an error.

Chapter III, the main body of the work, contains descriptions of all the species and subspecies, notes on their molts, plumages, habits and distribution, and discussions on their relationships. Keys to the species are provided, but unfortunately, when put to the test of actual usage these prove to be the weakest part of the work. The author has tried to make the keys portray his conception of the relationships and affinities of the various groups instead of allowing them to be merely artificial conveniences. On page 70, for example, near the beginning of the key there are three alternatives, viz.:—1, "Pattern-back" (with, or without a red head-top); 2, "Plain- or Pattern-back" (always with a red head-top); and 3, "Plain-back" (with some exceptions and with the head-top sometimes red). No clear-cut distinctions are given and hence, at the outset one is left in doubt as to which branch of the key to follow. Had the division been more artificial (e. g. "plain-back" versus "pattern-back" and the species grouped accordingly regardless of their natural affinities) no uncertainty would have existed. Possibly a lengthening of the key would have resulted, since "border-line" species would of necessity have to be worked in on both sides.

In Chapter IV a very useful historical résumé of the genus is followed by a list, with comments, of the more important literature, and this in turn is followed by a summary of the museum material on which the review is based. A total of 10,355 skins, including types of 36 species, 111 sub-

species, and 93 synonyms were examined. The remainder of this chapter is devoted to an account of the "Cisticola tour" which Lynes, accompanied by B. B. Osmaston, made between November 1926 and July 1927.

The plates are bound separately and relative to each figure there is a considerable amount of explanatory text; so that this is in fact an abridged review, complete in itself. Each species is figured semi-diagrammatically (i. e., with wings and tail partly spread, and with no attempt to portray life-like attitudes) and considerable ingenuity and originality is displayed in the manner in which each figure is arranged in such a way as to be directly comparable with the others. All are life-size and parallel lines running through each plate indicate differences in proportions of wing, tail, tarsus and toes in the various species in their different plumages. The drawings are the work of Mr. Grönvold, whose careful attention to accuracy and detail is responsible for the important part they play in relation to the whole work.

Students of systematic ornithology owe a debt of gratitude to Admiral Lynes for the able manner in which he has disentangled the knot into which the taxonomy of the Cisticolas has long been involved. Admiral Lynes is, we understand, back in Africa now endeavouring to clear up certain points about these birds which he was unable to solve during his previous trip.—
W. W. BOWEN.

Abel Chapman's 'Memories.'—Active to the end the late Abel Chapman was at work on this volume¹ through his last illness, until his death and had practically finished it, even to the table of contents and the text figures which, as in his previous works, he executed with his own hand.

The chapters of 'Memories' deal with incidents in his long and eventful life not fully covered in his other volumes, mainly occurring in Africa from Khartoum to Cairo. There are also two chapters dealing with Spain and four with his homeland in Northumberland. Bird Life on the White Nile is a fascinating account of a single day's observations and the account of Lake Menzaleh is the story of another bird paradise.

One chapter deals with reviews and reviewers in which Chapman humorously describes his own experience as a reviewer. His reviews were too severe for his chief who gave orders to leave books alone that he could not review favorably and later discharged him because no reviews whatever were forthcoming! In another chapter he takes a final fling at what he terms "dermatology" and many eminent scientific journals and describers of subspecies come in for sarcastic criticism. Always a lover of the outdoors and an exponent of observation of living animals he was quite unable to appreciate the work of the student of museum specimens. It is interesting and suggestive to compare his theories of migration in northern Egypt

¹ Memories of Fourscore Years less Two 1851-1929. By Abel Chapman, with a Memoir by George Bolam. Gurney and Jackson, London, 33 Paternoster Row, Edinburgh: Tweeddale Court, 1930, Pp. i-xxvii + 1-257. Price 21 shillings, net.

based only on his personal observations with the carefully prepared account of Col. Meinertzhagen (cf. Nicoll's *Birds of Egypt*)!

But to all lovers of the outdoors Chapman's books are delightful and instructive reading and in his passing we lose a true lover of nature of a school that is all but gone.—W. S.

Brooks's 'List of the Birds of West Virginia.'—To the 'West Virginia Encyclopedia,' a stout volume¹ containing articles on the prominent citizens, industries, localities, etc., of West Virginia, Rev. Earle A. Brooks has contributed an annotated list of 268 species of birds found in the State with brief notes on the character of their occurrence. A number of halftone illustrations from photographs and drawings are included.—W. S.

Zimmer on 'Birds of the Marshall Field Peruvian Expedition.'—In 1922-23 Mr. Zimmer accompanied the Marshall Field Expedition to Peru as ornithologist and the present paper² is a report on his collection of 1497 skins made for the Field Museum. Landing at Callao he worked up the Rimac valley then down the Huallaga Valley and in the headwaters of the Marañon, Pichis and Perene Rivers.

The annotations under each species are very full and present valuable information not only on the specimens secured but on the relationship of the forms under discussion, nomenclature, type localities and location of type specimens. All in all this paper is one of the most important dealing with the Peruvian avifauna that has appeared in recent years. While a number of new forms have been elsewhere described from this collection new races of *Catamenia*, *Colonia*, *Diglossa*, *Jacana*, *Ochthoeca*, *Thlypopsis* and *Todirostrum* are proposed in the present work and a new genus *Aglaiocercus* (p. 290), is established for *Ornismya kingii* Lesson, all of the names used for it and its allies proving unavailable.—W. S.

Oberholser on Birds from Arizona and New Mexico.—The Cleveland Museum has recently acquired through the gift of Mrs. S. Prentiss Baldwin, a collection of 512 birds made by W. W. Brown in the Huachuca Mountains, Arizona, and the Sacramento Mountains, New Mexico, and the present paper³ is a report upon this material.

Several changes in nomenclature are proposed by the author. The genus *Myiochanes* is divided, our Wood Pewee and its western representative being placed in *Horzopus*, while it is considered that those who recognize two forms of Olive-sided Flycatcher must use the name *borealis*

¹ The West Virginia Encyclopedia. Phil Conley Editor in Chief. First Edition. West Virginia Publishing Company, Charleston, West Virginia. 1929. Pp. 60-74 contain bird matter.

² Birds of the Marshall Field Peruvian Expedition, 1922-1923. By John T. Zimmer. Field Museum Nat. Hist. Publ. 282. Zool. Series, XVII, No. 7. December 10, 1930. pp. 233-480.

³ Notes on a Collection of Birds from Arizona and New Mexico. By Harry C. Oberholser. Scientific Publ. Cleveland Mus. Nat. Hist., I, No. 4, pp. 83-124. December 31, 1930.

for the western one in place of *majorinus*. The Black-throated Gray Warbler is separated into two races the Arizona form taking the name *halseii* Giraud.

The Meadowlark of Arizona formerly regarded as identical with *hoopesi* of the Rio Grande Valley, is separated as *Sturnella m. lilianae* (p. 103) after Mrs. Baldwin, and a colored plate of it by Brooks forms a frontispiece to the paper. The Savannah Sparrows are revised at length; *alaudinus* it is claimed is the bird described by Grinnell as *nevadensis* and *anthinus* Bonaparte is the name available for the Western form formerly known as *alaudinus*. The coastal race of British Columbia and Washington, *brooksi*, is recognized as valid while *beldingi* is considered as a subspecies of the *sandwichensis* group as is the bird recently described by Huey as *Passerculus rostratus anulus*.

Incidentally *Catherpes mexicanus meliphonus* (p. 95) is described as new from Sonora, Mexico.

It is evident that the field for new races and name shifting in our western states is not yet exhausted as some seem to think.—W. S.

Mayr's New Guinea Collection.—During the year 1928 Dr. Ernst Mayr of the Berlin Museum undertook an expedition in the interests of Dr. L. C. Sanford and Lord Rothschild to New Guinea, and spent six and a half months in the Arfak Peninsula, the Cyclops Mountains and some other points. In spite of the usual hardships incident to travel in this country he succeeded in bringing back nearly 3000 birds and 260 mammals. The former are reported upon by Dr. Ernst Hartert in the paper¹ before us.

No less than 352 species and subspecies are listed of which two species and thirty subspecies are described as new and incidentally nine new subspecies from other sources are named.

Dr. Hartert has a short prefatory account of the origin of the expedition followed by an itinerary and account of the trip by Dr. Mayr, and finally the well annotated list by Dr. Hartert.

We note that no less than twenty-four kinds of Paradise and Bower Birds are included in the collection.

Dr. Mayr has accomplished a splendid piece of work in making such a fine collection and adding greatly to our knowledge of the New Guinea avifauna. One especially interesting discovery is that the Dumas collection supposed to have come from the Cyclops Mountains evidently never came from there but from another range.—W. S.

Allen on the Birds of Liberia.—Dr. Glover M. Allen accompanied the Harvard-African Expedition of 1926 to Liberia and with his associates

¹ On a Collection of Birds Made by Dr. Ernst Mayr in northern Dutch New Guinea. By Ernst Hartert. *Novitates Zoologicae*, XXXVI, pp. 18-128. November, 1930.

secured specimens of 137 species of birds of which 21 had not previously been recorded from that country.

The present report¹ is based primarily upon this collection and the observations of the party but the author has wisely made it a complete list of Liberian birds including all species that had been recorded by previous writers. Following the name and reference to place of publication there "comes a very brief description designed to help in the identification of specimens, particularly for anyone slightly familiar with birds who may live in Liberia; the range in Africa follows and then a summary of what has been published on the habits and occurrence of the species in Liberia, together with our own notes where these seemed sufficiently important." From this it will be seen that the report which covers 281 species is far more than a list and will prove most valuable as a work of reference. The author, moreover, has carried out his plan with excellent judgement and writes with his usual clarity and facility of expression. There are preliminary chapters on Ecology, River Birds, the Forest, Alterations of the Forested Areas, Migrants from Europe, and Local Migrations.—W. S.

Burt on 'Adaptive Modifications in the Woodpeckers.'—This detailed study² of the skeleton and musculature of all of the genera of North American Woodpeckers with the exception of the Ivorybill (*Campephilus*) presents a large amount of interesting data which when summarized shows that the most obvious adaptive modifications are in the skull, with a positive correlation between its structure and the habits of the birds. Arboreal habits are correlated with a wider cranium, wider straighter bill, with a folding under of the frontals along their line of contact with the premaxillae, and in general a stronger built skull than is found in the less arboreal types. As to muscles the family may be divided into two sections as to the presence or absence of the accessory semitendinosus muscle.

The author regards the Flicker (*Colaptes*) as the most generalized type of Woodpecker and the Three-toed Woodpecker as the most specialized which would involve the theory that Woodpeckers were originally terrestrial and that the arboreal habit is a later specialization, a conclusion with which we think most students of the group will agree. Mr. Burt has made a valuable contribution to bird phylogeny and anatomy.—W. S.

Gross on Wisconsin Prairie Chickens.—The investigation reported upon in the present publication³ was undertaken for the Research Bureau of

¹ The Birds of Liberia. By Glover M. Allen. Reprinted from the Report of the Harvard-African Expedition upon the African Republic of Liberia and the Belgian Congo. pp. 636-748.

² Adaptive Modifications in the Woodpeckers. By William Henry Burt, Univ. of Calif. Publ. in Zool., Vol. 32, No. 8, pp. 455-524. December 10, 1930.

³ Progress Report of the Wisconsin Prairie Chicken Investigation. By Alfred O. Gross, Ph.D., Special Investigator for the Research Bureau of the Wisconsin Conservation Commission. Madison, Wisconsin. 1930. Pp. 1-112, numerous illustrations.

the Wisconsin Conservation Commission and Dr. Gross with his long experience with the Heath Hen was an admirable selection for the task.

The subject is approached from every angle and details are presented on factors controlling Wisconsin Grouse, the climate, soil, and vegetation of the state, distribution and abundance of the bird, laws pertaining to it, migration, parasites and disease, food, and a complete life history.

Attention is called to the cycle of abundance that seems to exist in which this and other upland game birds, notably the Ruffed Grouse, abound one year and are very scarce the next, the reason for this condition being still unexplained. Refuges are urged as an important factor in increasing the birds but the need of restoring the marsh lands in order to improve Grouse conditions and reduce fire hazards is most urgent. As to predators Dr. Gross wisely says "The indiscriminate wholesale destruction of all predators is to be rigidly avoided as such a procedure is destined to upset the balance of nature in such a way as to act as a boomerang to the objective. The shortening of the hunting season is also urged as a necessity and in this connection Dr. Gross says: "Too often we may think of game birds as just so many birds to kill and overlook the interests of other citizens who value the birds in a different way. The farmer who protects and feeds the Prairie Chickens because he likes to see them on his farm has rights which we should all respect." If the two quotations above noted were taken to heart by our game commissions and game breeders many of our wild birds would be better off and we should not be in danger of having to reap the whirlwind that will follow the present destruction of nature's balance.

Dr. Gross has given us an admirable report and we hope that the Wisconsin authorities will follow the advice that he has laid down and that ornithologists and others in Wisconsin will coöperate in gathering the detailed data that is necessary to properly carry out the salvation of this valuable and interesting bird.—W. S.

Koslova on Birds of Trans-Baikal and Mongolia.—In a paper¹ of 396 pages entirely in Russian E. V. Koslova describes the birds of the Trans-Baikal country, northern Mongolia and central Gobi. The annotations are very full and there are lists of the specimens obtained on explorations which were made in 1924 and 1926. A number of half-tone reproductions of photographs illustrate the character of the country as well as skins of several species of birds.—W. S.

Annals of the Zoological Museum of the Academy of Sciences U.S.S.R. 1928.—This volume entirely devoted to ornithology and wholly in Russian opens with a memoir of the late Peter P. Sushkin with a portrait and bibliography. Other papers are 'The Bluethroats of the Eastern

¹ Acad. Sci. U.S.S.R. Materials of the Commission for the Investigation of the Mongolian and Tuvinsk Peoples' Republics and the Buriat-Mongolian Autonomous S.S.R. No. 12.

Paleartic,' by A. Tugarinow, in which four new subspecies of *Cyanosylvia suecica* are described; 'Supplementary Notes on the Birds of Altai,' by L. A. Sulpin; 'Materials for a study of the Ornithology of Southern Tzaritzin,' by A. Argipulo; 'Reciprocal Relations between the races of *Emberiza schoenicla* and *E. pallasi*,' by L. A. Portenko, with descriptions of several new forms; 'The Birds of Southeastern Transbaikalia,' by B. Stegman, an extensive paper with an annotated list of 303 species and subspecies; 'The Races of *Emberiza aureola*,' by V. Stancinskij, with descriptions of new forms; 'New Birds from Northern Mongolia,' by A. Tungarinow; 'Contributions to the Ornithology of Central Asia,' by E. Koslova; 'The Siberian Field Larks,' by A. Ivanov, with description of a new race; 'Contributions to a Knowledge of the Ornitho-geography of Southwestern Asia,' by P. V. Serebrovskij.—W. S.

Ognev and Worobiev on the Vertebrate Fauna of Woronesh.—This paper entirely in Russian treats of the mammals, birds and reptiles of the Woronesh Government, Russia, and their distribution. New forms of the first group are described.—W. S.

The Illinois Audubon Bulletin.—This admirable report¹ contains as usual much of general interest to the ornithologist as well as to the conservationist. Dr. Gross has a plea for saving the Prairie Chicken, and W. I. Lyon an account of the white Heron invasion of the past summer while Jesse L. Smith reports a meeting of mosquito exterminators and bird protectors which to our mind is the most important feature of the report. The draining of marsh land along the Atlantic coast in the interest of mosquito extermination has been carried on with such a lack of knowledge of the factors involved that any move to hold this work in check elsewhere should receive the hearty approval of every lover of nature. Over large areas in New Jersey where no mosquitos bred the native flora, thousands of birds which fed on the insects, and the entire population of toads which are also insect eaters have been exterminated. Let us hope that Illinois may succeed in saving her marsh lands! Mr. A. M. Baily has a short paper in which the same matter is incidentally discussed while his excellent photographs adorn the report.—W. S.

Williams's 'The Migration of Butterflies.'—This important work,² while appealing more directly to the entomologist, is well worthy of the attention of the student of bird migration since it brings up many problems which concern birds as well as butterflies, while the author in his concluding chapters discusses the resemblance in migration in the two groups. It is pretty conclusively shown that migration in butterflies is voluntary and

¹ The Audubon Bulletin Published by the Illinois Audubon Society. No. 21 1931. Pp. 1-39.

² The Migration of Butterflies. By C. B. Williams. Oliver and Boyd. Edinburgh: Tweddale Court, London, 33 Paternoster Row, E. C. 1930. Pp. i-xii + 1-473. Price 21 shillings net.

often takes place against the wind while it is limited to a comparatively small number of species. That wind may have something to do with its direction is admitted, but evidently it has little more influence than in the case of birds.

It is claimed that in the Monarch butterfly (*Danais plexippus*) there is a return flight in the spring after semi-hibernation in the south, but in the reviewer's experience if this return flight occurs at all it is in no way comparable with the enormous southward flights of late summer and early autumn, which some years traverse the Atlantic coast of New Jersey. In other species there seems to be no return flight and this is contrasted by the author with bird migration in which it is stated that there is always a return flight. It seems to us, however, that in the case of our Red-breasted Nuthatch (*Sitta canadensis*) we have, both in the irregularity of its migration and in the very limited return flight, an exact parallel to the case of the Monarch as we have found it in the eastern United States.

The author has scoured the literature for all references to butterfly migration and the items are arranged systematically, the compilation occupying most of the volume and forming a valuable record, but it is mainly the chapter discussing the general problem that appeals to the ornithologist, unless he be also something of a lepidopterist.—W. S.

The Biography of Thomas Say.—Harry B. Weiss and Grace M. Ziegler have written a most interesting historical narrative in their 'Thomas Say, Early American Naturalist.'¹ Not only have they portrayed the life of the naturalist but have presented contemporary pictures of life in Philadelphia and in New Harmony, Indiana, at the various periods of which they write, while the history of the Philadelphia Academy and of the Owen communistic experiment are closely interwoven in the story. Brief biographies of Say's most intimate friends and associates are also presented in supplementary chapters.

Say was primarily an entomologist and next to that a conchologist and to these activities the authors have very properly given most attention. As an ornithologist he is not so well known but according to the statements in this work he revised the text to the first volume of Bonaparte's 'American Ornithology' and also papers in the 'Journal' of the Philadelphia Academy, some of which were ornithological, but it should be mentioned that in his notes to the report of Long's Expedition he described for the first time a number of our western birds, nine of which still retain the specific names given by him, while the generic name of our Phoebe is *Sayornis* given in recognition of Say's contribution to American ornithology. The only mention of these matters we have been able to find in the Biography is a statement that he named "five" birds in Long's 'Narrative.' One interesting

¹ Thomas Say, Early American Naturalist. By Harry B. Weiss and Grace M. Ziegler. A Foreword by L. O. Howard. With twenty-seven Illustrations. MCMXXXI, Charles C. Thomas, Publisher. Springfield, Illinois. Pp. i-xiv + 1-260. Price \$5.00

statement that we do find but without mention of authority is that "in 1816, encouraged by his friend Alexander Wilson who promised to help him, he projected a work on American entomology." Any "encouragement" by the ornithologist at this date we are inclined to question since Wilson had died in 1813. However these matters do not in any way detract from the value or charm of the biography. Ornithologists know what Say contributed to their science and realize that ornithology was but a minor factor in his life, but they will be deeply interested in the history of this remarkable man and his associates and of the times in which they lived. The volume is admirably written, well gotten up, and illustrated by a number of portraits and historical scenes.—W. S.

Oliver's 'New Zealand Birds.'—Probably all of the members of the A. O. U. who listened to Mr. Cope's enthusiastic account of his sojourn in New Zealand, at the Salem meeting of the Union, were filled with a desire to visit this far off land, to share the hospitality which he described and to make the acquaintance of the unique avifauna of the islands.

To those who contemplate making the trip Mr. Oliver's admirable volume¹ on the birds of the Dominion will prove an invaluable companion while those who must forego the pleasure of a personal acquaintance with this fascinating land may still become familiar with its bird life through the same medium.

While there have been expensive illustrated works on New Zealand birds there has been no publication comparable with Mr. Oliver's. In it we have an up-to-date handbook giving us in readable form just the information that we desire. After the name of each bird there is a brief history of the discovery of the species and other general facts relating to it; then a description of adult and young, forms (subspecies) and mutants (phases or abnormalities); a paragraph on its eggs and another on distribution, both in New Zealand and elsewhere; and finally its habits and relation to man. A supplementary note contains references, beginning with the original description and type locality. Extinct species are considered along with the living and there are six color plates by L. A. Doff, apparently from mounted specimens, and numerous text figures largely from photographs.

We learn from the account of the interesting Kea Parrot that only some individuals attack sheep and that the habit apparently arose from the birds having tasted meat by feeding on dead sheep or on refuse meat thrown out on the ground. Where such meat is not available the birds return to their normal vegetable and insect diet and the desire for meat is lost, as is usual in a habit so recently acquired.

Of the Apteryx or Kiwi four species are recognized, three from the South Island and one from the North. The first Kiwi brought to Europe was obtained by Capt. Barclay about 1813 and was the South Island form known as the Tokoeka. The fourth species *A. haastii* was not discovered

¹ New Zealand Birds. By W. R. B. Oliver, Director Dominion Museum. Wellington. Fine Arts (N. Z.) Ltd., 1930. Pp. i-viii + 1-541. Price 30 shillings.

until 1871. No less than twenty-two species of the extinct Moas are recognized referred to five genera. Moa gizzard stones, four perfect eggs and pieces of skin with feathers and muscles attached have been discovered and the evidence is clear that they were killed in numbers and cooked for food by the Maoris after they reached the islands and to this slaughter is attributed the apparently rapid extermination of the great birds.

Since the settlement of the country by Europeans twenty-three species of birds have either become extinct or have been greatly reduced in numbers. As a factor in this the introduction of foreign birds is to be considered and America would do well to seriously take heed of the effect of the enormous increase in the numbers of the European Starling and the consequent disappearance of our native species where the foreigner is most strongly entrenched. If this species is not held in check some of our native American birds will go the way of the New Zealand forms.

Where fields and plantations replace native forest in New Zealand, we learn that European, Australian and Asiatic birds meet the eye on all hands and here and there only is a native species to be seen. Mr. Oliver is to be congratulated upon his excellent book which should be in every ornithological library describing as it does one of the most interesting bird faunas to be found anywhere in the world.—W. S.

Baerg's 'Birds of Arkansas.'—Prof. W. J. Baerg, of the Entomological Department of the University of Arkansas, College of Agriculture, has prepared an excellent pamphlet¹ on the birds of the state. There are introductory remarks on distribution, migration, song, conservation etc., with a table of arrival dates at Fayetteville and another showing song periods.

The main text consists of a brief description of each species and a statement of range followed, in the case of the better known species, by a short account of habits, etc. A number of halftone illustrations are scattered through the text.

The present list includes 312 species or subspecies of which 15 have not definitely been observed within the state limits but are listed because there is every likelihood of their presence there. Howell's list of 1911 contained 255 forms with 35 additional not yet definitely found within the state, while Wheeler's list, 1924, included 287 species and subspecies of which 2 were not definitely known from within the state limits, so that the score would seem to stand Howell 255, Wheeler 285, and Baerg 297.

Mr. Baerg's publication will prove of much assistance to teachers and bird students throughout Arkansas and will doubtless result, in the near future, in definite records for the fifteen species requiring confirmation.—W. S.

Van Schaick's 'The Little Hill Farm.'—Those who are familiar with Mr. Van Schaick's nature sketches will welcome another little volume

¹ Birds of Arkansas. By W. J. Baerg. Bulletin No. 258. Agricultural Experiment Station. Univ. Arkansas. College of Agriculture. Dan T. Gray, Director. Fayetteville, Arkansas. January, 1931. Pp. 1-197. Price 77 cents.

published under the above title.¹ It treats of nature as seen in a little valley in the Catskills and of farm life in a rather remote spot. While birds do not figure very largely the chapters will hold the interest of all who love the outdoors.—W. S.

Mailliard's 'Birds of Golden Gate Park.'—This serviceable little booklet² has been prepared by Mr. Mailliard for the benefit of bird lovers and those who might become bird lovers, who frequent Golden Gate Park, San Francisco, and who have expressed a desire for a local guide to the bird life of this area.

The work is, we think, admirably adapted to its purpose and will be of service to all who would know the birds of the San Francisco region. On each left hand page are drawings of several birds with brief descriptions based on field characters—the bird in the bush rather than the bird in the hand—while on the opposite pages are brief accounts of striking habits or characteristics of the species figured, their time of occurrence, relative abundance and habitat. The species are arranged in several sections—birds of the lakes, birds of the high trees, birds of the air, birds of the ground, etc.

The little book is published and sold by the California Academy of Sciences, at the museum in the Park.—W. S.

A Theoretical Discussion of the History of Bird Migration, by Mayr and Meise.³—Recent literature on bird migration has been very largely descriptive, or such theory as has been introduced, so mixed with descriptive matter as to lose clarity or balance. Hence the present paper which confines itself to the theory of migration, using as evidence facts already established and for the most part familiar, is well worth careful study and discussion. It concerns itself with the historical-zoogeographic and evolutionary origins and development of migration, without considering the biological factors which control it in,—or how it is accomplished by, the individual bird.

The paper consists of two parts. First there is a general review of the subject. Migration can only be understood from its historical aspect; each year's migration is an unfolding of habits which have their origin in the history of the respective species, not a new enterprise. Migration is always correlated with seasonal change, which renders regions favorable for avian occupancy at one part of the year unfavorable at another; hence, birds of

¹ *The Little Hill Farm or Cruisings in Old Schoharie.* By John Van Schaick, Jr. Universalist Publishing House, 176 Newbury Street, Boston, Mass. (1930). Pp. 1-179.

² *Handbook of the Birds of Golden Gate Park, San Francisco.* By Joseph Mailliard, Curator Emeritus Department of Ornithology, California Academy of Sciences (Special Publication) San Francisco. Published by the Academy. 1930. Pp. 1-84.

³ *Theoretisches zur Geschichte des Vogelzuges.* Von Ernst Mayr und Wilhelm Meise. *Der Vogelzug*, I, 1930, Heft. 4, pp. 149 to 172.

the seasonless tropics are to all intents and purposes permanent residents. Conversely where birds find favorable habitats for part of the year only there will of necessity be migration. Migration is sometimes loosely thought of as a phenomenon due to the glacial period, but it must have existed long before. Even when an equable climate covered the poles there must have been an annual migration away from the arctic night, unless the arctic day was birdless, which is unthinkable. Species, of which there are many examples, wherein the more northerly nesting individuals are migratory, and the more southerly resident, those of intermediate latitudes moving only irregularly, or in severe winters (*Strichvögel* in German), may be studied to advantage for what they suggest as to the purpose and origin of migration.

In considering an invasion of the north by ice during the Glacial Period the authors believe that in the main the birds of high latitudes died out as their territory became uninhabitable, rather than that any considerable shift of the actual population to the south occurred. This is consistent with the point of view elsewhere mentioned or implied in the paper, that shifts in a bird's abundance or range are referable to expansion here and contraction there rather than to population movements. This may (or may not) be the correct solution of a familiar problem, which is as yet by no means settled. They do not mention and perhaps would not entertain the possibility of unglaciated areas in the north free from ice during a glacial period with a summer bird population which retreated in winter south of the ice, flying over glaciated areas. Nor do we find developed the concept of zonal bands of climate, arctic at the actual ice front, then sub-arctic, boreal, temperate; narrow to be sure like the zonal bands on a mountain, but as on a mountain each with its appropriate birds,—slowly moving south as the ice advanced, moving north and expanding again as the ice retreated. They have minimized the glacial period as an historical factor traceable in bird migration as it exists today. Nevertheless one cannot but agree that there never was an abnormal concentration of birds south of the ice during the glacial period, which on account of such concentration expanded more rapidly as the ice retreated than any normal bird population will expand given new and favorable territory. Not the glacial period, but a favorable alternating with an unfavorable season in higher latitudes is the cause of migration. At the height of glaciation most of the north temperate bird population (the Palaearctic avifauna is especially referred to in this paper) must have been almost resident in a comparatively narrow area south of the ice; and the history of our present migration is essentially postglacial.

To recapitulate, in a year-round favorable environment the bird is resident in its breeding range; migration is a direct result of changing seasons or conditions, and as such existed, just as seasons did, before the glacial period; in the glacial period our birds were confined to a comparatively small area and little migratory; migration in its present form developed postglacially, the retreat of the ice opening broad areas for invasion by natural expansion of the bird population, and much of the new territory

being habitable for only a part of the year; many factors and circumstances have since influenced these primary facts so that now the migration of almost every species is developed in ways peculiar to itself.

This brings us to the second part of this paper, an hypothesis as to how migration routes developed, lengthened and attained their present form. First came the invasion little by little but eventually to its farthest limit, of postglacially available breeding territory not suitable for winter occupancy. Retreat of the breeding population from this new territory in winter would congest the more or less original permanent resident range so that pioneers would push its southern limit southward. Either the entire population must shift south, the more southerly breeders evacuating territory occupied by birds from the north, or the northern migrants pass over residents, to occupy territory beyond them. As a matter of fact each condition has been demonstrated to exist today in certain cases. The primitive migration route, supposed to follow the line of original invasion, more or less direct or circuitous, must have been altered in many cases, alterations tending to make it more direct. A condition wherein summer and winter ranges overlap is presumed to be primitive. Environmental and economic conditions which tend to extend the summer range in one direction (to the north), the winter range in the other (to the south) are discussed, but not considered adequate to account for the evolutionary tendency which seems to have been active in thus lengthening the migration route, at both ends, so that the winter range is frequently in part, or in whole, removed beyond any faunal area where the species has affinities. It is suggested that the migration-urge once started, has tended to increase, as an evolutionary behavior rectegradation, causing the bird to swing annually pendulum-wise over an ever increasing course. The original home of the species, where it was at one time resident, may then lie neither in the present breeding or wintering areas, but at some intermediate point. As has been said, environmental influences are discussed in connection with the theory advanced, yet it may be that their influence has not been given full credit, either as a factor to, in some cases, turn migration from a direct course, or to produce it southward as a balance to its northward extension. Take for instance the case of the American Golden Plover, perhaps diverted eastward to the coast of Labrador in fall by the berry-crop, with winter range established in high latitudes of the southern hemisphere where winter conditions parallel those of the bird's summer home.—J. T. N.

Shorter Papers.

Berlepsch, Hans Freiherr von.—Twenty-second Review of Bird Conservation at Burg Seebach. [In German.]

Bowen, W. Wedgewood.—The South African Forms of *Sazicola torquata*. (*Proc. Acad. Nat. Sci. Phila.*, LXX XIII, pp. 7-9, February, 1931.)
—Six races recognized of which *S. t. stonei* (p. 8) from Angola is described as new.

Brodkorb, Pierce.—Description of a New Warbler from Guadeloupe, West Indies. (*Proc. Biol. Soc. Washington*, Vol. 44, pp. 3-4, February 21, 1931.)—*Dendroica plumbea guadeloupensis* (p. 3).

Danforth, Stuart T.—Puerto Rican Ornithological Records. (*Jour. Dept. Agr. of Porto Rico*, XV, No. 1, January, 1931.)—Annotated list of 144 species with lists of specimens in the author's collection bringing the record of his ornithological observations in the island up to date.

Beatty, Harry A.—Notes on Birds Observed at Guanica Lagoon and its Vicinity (Porto Rico). (*Journ. Dept. Agr. Porto Rico*, XV, January, 1931.)—Notes on 24 species.

deSchauensee, R. M.—A New Species of Bustard for South Africa. (*Proc. Acad. Nat. Sci. Phila.*, LXXXII, pp. 427-428, January 12, 1931.)—*Eupodotis alleni* (p. 427) Spitz Koppij, Protectorate of S. W. Africa.

deSchauensee, R. M.—Two New Birds from South Africa. (*Proc. Acad. Nat. Sci. Phila.*, LXXXIII, pp. 5-6, January 24, 1931.)—*Lophoceros williaminae* (p. 5) Kachikau, Bechuanaland. *Certhilauda albofasciata boweni* (p. 5) Spitz Koppij, S. W. Africa.

Friedmann, Herbert.—The Geographic variations of *Neocichla gutturalis*. (*Jour. Wash. Acad. Sci.*, Vol. 20, p. 434, Oct. 19, 1930.)—*N. g. angustus* described as new from Tanganyika Territory.

Geiser, S. W.—Naturalists of the Frontier, VIII, Audubon in Texas. (Autumn 1930, Number of the *Southwest Review*).—An interesting journal of Audubon's trip along the coast of Louisiana and Texas in the spring of 1837, reconstructed from the Buchanan biography and entries in the 'Birds of America.' The author while very properly deploring the errors in Buchanan's 'Life of Audubon,' makes a few of his own. The Audubon biography of 1898, for instance, was by Audubon's granddaughter not his daughter and Audubon's 'Birds of America' was not the first "repayment by the New World to the Old for inspiration and leadership in science," since Alexander Wilson's 'Ornithology' was completed thirteen years before Audubon's work was begun, and to quote Baron Cuvier it "treated American birds better than those of Europe have yet been treated."

Griscom, Ludlow.—Studies from the Dwight Collection of Guatemala Birds III. (*Amer. Mus. Novitates*, No. 438, Dec. 15, 1930, pp. 1-18.)—Twenty new subspecies described with reviews of the forms of *Icterus gularis*, *I. sclateri* and *Zonotrichia capensis*. A new generic name *Smaragdolanus* (p. 3) is proposed for *Vireolanus pulchellus*.

Groebeels, Franz.—Physiological Investigations of Transient Birds of Heligoland (*Zeitschr. f. vergl. Physiologie*, 1930, pp. 682-702). [In German.]—Other papers on bird flight by the same author are published in 'Die Naturwissenschaften' XVII, Heft 46, XVIII, Heft 38; 'Forschungen u. Fortschritte' V, No. 16 and *Verh. Ornith. Ges. Bayern*, XVIII, Heft 1-2.

Groebeels, Franz.—On Assimilation and Food Waste in Birds. (*Der Zool. Garten*, III, Heft 9-10, 1930.) [In German.]—Other papers by Groebeels on digestion, food reactions, etc., in birds, are published in *Pflügers*

Archiv. f. die gesamte Physiologie des Menschen und der Tiere, 216, Heft 6; 218, Heft 1; and 224, Heft 6.

Groebbels Franz.—On the Color of the Cuticle of the Stomach Muscles of Birds. (*Zeitsch. f. vergleich. Physiologie*, X, Heft 1.) [In German.]

Groebbels, Franz.—On the Life of the Bird Embryo and the Length of Life of the Cuckoo in the Egg. (*Ornith. Monatsber.*, May, 1930.) [In German.]

Harper, Francis.—Physiographic and Faunal Areas in the Athabasca and Great Slave Lake Region. (*Ecology*, XII, Jan. 1931, pp. 18-32.)

Kuroda, Nagamichi.—On the Geographic Distribution of the Birds of Japan and Vicinity. (*Proc. Fourth Pacific Scientific Congress*, Java, 1929.)

Lefevre, Rufus H.—Summer Birds of Hong Kong. (*Lingnan Science Journal*, Canton, IX, Nos. 1-2, June, 1930.)

Ortenburger, A. J. and Little, Elbert L., Jr.—Notes on a Collection of Birds from Western Oklahoma. (*Biol. Survey (Oklahoma)* II, No. 4, 1930.)

Nice, Margaret M.—A List of the Birds of the Campus of the University of Oklahoma (*Biol. Survey (Oklahoma)* II, No. 4, 1930.)—113 species listed, 13 residents, 27 summer residents, 9 winter visitants and 65 transients.

Peters J. L.—Additional Notes on the Birds of the Almirante Bay Region of Panama. (*Bull. Mus. Comp. Zool.*, LXXI, No. 5, Feb. 1931, pp. 293-345.)—Annotated list of a collection of over 1000 skins made by H. Wedel and presented to the museum by F. H. Kennard. A supplementary list includes additional species recorded from the region by others: *Leptotila plumbeiceps notius* (p. 298) Almirante and *Oreopelia lawrencii lentipes* (p. 300) Tenorio River, Costa Rica, are described as new.

Peters, J. L.—Notes on Some Night Herons. (*Proc. Boston Soc. Nat. Hist.*, Vol. 39, No. 7, November, 1930.)—Sharpe in his 'Handlist' recognized eight species of Night Herons. Of these Mr. Peters makes *tayazugira* a synonym of the earlier *hoactli*, which replaces the untenable name *naevia* for the bird of America; true *nycticorax* of Europe and *cyaniceps* of Patagonia, etc., are recognized as distinct subspecies, while *leuconotus* is referred to a separate genus *Calherodius* erected for it and the more recently described *magnificus*. The last four of Sharpe's species are regarded as subspecies of *caledonicus* and four additional races of it are described.

Peters, J. L.—Remarks on the Hawks hitherto included in the Genus *Ibycter*. (*Proc. Biol. Soc. Wash.*, Vol. 44, pp. 23-26, Feb. 21, 1931.)—The species *ater* and *americanus* are referred to *Daptrius* which has priority over *Ibycter* and is not considered separable while the other species—*australis albugularis*, *megalopterus*, and *carunculatus* are referred to *Phalcobæus* with which *Senex* is merged.

Portenko, L. A.—*Hypotriorchis subbuteo*. (*Bull. Acad. Sci. U.S.S.R.*,

1930, pp. 299-300.)—Six races recognized of which *H. s. distinguendus* (p. 302) and *H. s. planicola* (p. 308) are described as new. [In Russian.]

Riley, J. H.—Description of three New Birds from Siam. (*Proc. Biol. Soc. Washington*, Vol. 43, pp. 189-192, Nov. 29, 1930.) *Arborophila diversa* (p. 189); *Garrulax ferrarius* (p. 190) and *Dicaeum umbratile* (p. 191).

Robinson, H. C. and Kloss, C. B.—A Second Collection of Birds from Pulo Condore. (*Jour. Siam Soc. Nat. Hist., Suppl. VIII*, No. 2, Nov. 1930, pp. 79-86.)—*Otus bakkamoena condorensis* (p. 81) is described as new.

Stone, Witmer.—Three New Birds from Honduras. (*Proc. Acad. Nat. Sci. Phila.*, LXXXIII, p. 123, Jan. 23, 1913.)—*Myiochanes emleni* (p. 1); *Catharus melpomene worthi* (p. 2); *C. frantzi juancitonis* (p. 2).

Stresemann, Erwin.—Which Paradise Birds are of Hybrid Origin? (*Novitates Zoologicae*, XXVII, pp. 6-15, Nov. 1930.) [In German.]—No less than seventeen named forms are regarded as hybrids between well known species belonging to different genera, and one between two congeneric species. Several genera based upon these hybrid forms will also fall if Dr. Stresemann's views are accepted.

Swenk, M. H.—The Food of the Ring-necked Pheasant in Central Nebraska. (*Bull. 50 Agr. Exper. Sta., Univ. Nebraska.*)—About 89% of the food consists of grain etc., and 11% of insects. The economic status of the bird will vary locally sometimes being rated as injurious to crops and at others a valuable factor in destroying grasshoppers. The safest procedure is not to allow it to increase too much in any limited area. It is estimated that there are now about one million of these Pheasants in Nebraska.

vanRossem, A. J.—The Sonoran Races of *Camptostoma* and *Platypsaris*. (*Proc. Biol. Soc. Washington*, Vol. 43, pp. 129-132, July 18, 1930.)—*C. i. ridgwayi* is regarded as recognizable and is restored to the North American list replacing *C. i. imberbe*, while the Arizona *Platypsaris* is named *P. a. richmondi* (p. 130), true *aglaiae* being restricted to southern Mexico.

vanRossem, A. J.—A New Race of Gilded Flicker from Sonora. (*Trans. San Diego Soc. Nat. Hist.*, VI, No. 5, July 12, 1930.)—*C. chrysoides tenebrosus* (p. 171). Other new Sonoran forms are named in the same *Proceedings* as follows: *Columba flavirostris restricta* (No. 8, p. 197, Aug. 30); *Myiozetetes similis primulus* (No. 8, p. 198, Aug. 30); *Auriparus flaviceps fraterculus* (No. 9, p. 201, Aug. 30); *Toxostoma curvirostre insularum* (No. 11, p. 207, Sept. 30); *Pheugopedius felix sonorae* (No. 11, p. 208, Sept. 30); *Piaya cayana stirtoni* (No. 12, p. 219, Sept. 30); San Miguel El Salvador; *Piaya c. extima* (No. 12, p. 210, Sept. 30), *Izobrychus exilis pullus* (No. 15, p. 227, Nov. 28).

VanRossem, A. J.—Four New Birds from Northwestern Mexico. (*Trans. San Diego Soc. Nat. Hist.*, VI, No. 14, 213-226, Nov. 28, 1930.)—*Passerculus sandwichensis atratus* (p. 218), Tobari Bay, Sonora; *Amphispiza bilineata tortugae* (p. 222); Tortuga Island, Gulf of California; *A. b. cana* (p. 223), San Esteban Island, Gulf of California; *Heleodytes brunnei-capillus purus* (p. 225), Middle Lower California. In considering the

Passerculus rostratus group the author unites *guttatus* with *rostratus* and restricts *sanctorum* as a resident form on the San Benito Islands. He agrees with Oberholser (vid. sup.) that the recently described *anulus* of Huey is a form of *sandwichensis* but goes farther and treats all of the *rostratus* group in the same manner.

Dickey, Donald R.—A New Clapper Rail from Sonora. (*Trans. San Diego Soc. Nat. Hist.*, VI, No. 18, December 24, 1930.)—*Rallus obsoletus rhizophorae* (p. 235).

Wetmore, Alexander.—The Bullfinch of Ile a Vache, Haiti. (*Proc. Biol. Soc. Washington*, Vol. 44, Feb. 21, 1931.)—*Loxia violacea parishii* (p. 27).

The Ornithological Journals.

Bird-Lore. XX XIII, No. 1. January–February, 1931.

The Rosy Finch, a Friendly Winter Bird in Colorado. By Mrs. George J. Bailey.—A popular account of the Leucostictes.

The Season and the Christmas Census take up most of the issue. In the latter Cape May, N. J., with 78 species heads the list for the north-eastern states.

Dr. A. A. Allen has an interesting life history of the Cormorant; there is a color plate of the Burrowing Owl by Brooks and a photograph and account of the outrageous killing of Hawks at Cape May against which we have repeatedly protested. The New Jersey Game Commission has promised to "look into the matter," but the feeling on the part of sportsmen and game breeders is so strongly against the Hawks that it will probably take action on the part of all bird lovers in the State to produce any results!

The Condor. XX XIII, No. 1. January–February, 1931.

Some Flocking Habits of the California Quail. By John B. Price.

Notes on the Spotted and Flammulated Screech Owls in Arizona. By E. C. Jacot.

Variation in Color of Male House Finches. By H. Michener and Josephine R. Michener.—This is an exceedingly interesting and suggestive paper. The authors took a few feathers from the rump of every male bird that visited their traps and succeeded in some cases in securing several samples at considerable intervals from the same individuals showing the actual change in color. In all, 1980 plumages samples were obtained and it was found that of these, 383 individuals were orange or yellow instead of red and that those that repeated in later years usually changed to red but there was no evidence of any reverse change once the red plumage was attained. The brightening of the red color is attributed to the loss of the gray barbules and reference is made to a similar explanation in a previous paper by Dr. Grinnell. We would call attention to the fact that this matter was fully explained with photomicrograph illustrations by Dr. J. Dwight still earlier in his 'Sequence of Plumages and Moults of the Passerine Birds of N. Y.' (*Annals N. Y. Acad. Sci.* XIII, 1900). This, the

most important paper yet published on the molt of American birds, is not included in the authors' bibliography!

Charles Andrew Allen. By Joseph Mailliard.—While known as a collector, mainly to the past generation of ornithologists, Mr. Allen's bird skins are to be found in almost every large collection in the east as well as in California. He died in June 1930 in his 89th year.

Some Flowers visited by Birds. By A. L. Pickens.—List of plants with color of flowers, which have interested Hummingbirds.

The Wilson Bulletin. XLII, No. 4. December, 1930.

The Barro Colorado Laboratory as a Station for Ornithological Research. By Josselyn Van Tyne.—Illustrated.

Notes on the Wild Turkey in Indiana. By S. E. Perkins, III.

Larine Succession on Lone Tree Island. By C. G. Manuel.

Territory Disputes of Three Pairs of Nesting Marsh Hawks. By Paul L. R. Errington.

Seasonal Changes in a Bird Habitat in Texas. By G. Eifrig.

Notes on the Birds of South Central Kansas. By F. M. Alexander.

Notes on the Birds of Cranberry Glades, Pocahontas County, West Virginia. By Maurice G. Brooks.

Birds of Buchanan County, Iowa. By Fred J. Pierce.

The Oölogist. XLVIII, No. 1. January, 1931.

In the Nesting Haunts of the Western Winter Wren. By Fred Maltby. Pennsylvania and New Jersey Nesting Records for 1930. By R. F. Miller.

Bird Banding. II, No. 1. January, 1931.

A Study of the Chickadee and White-breasted Nuthatch by Means of Marked Individuals. By Wilbur K. Butts.—An admirable article illustrating the possibilities of the study of the actions and behaviour of individual birds.

Bird-Banding; Its First Decade under the Biological Survey. By F. C. Lincoln.

Bulletin of the Essex County [Mass.] Ornithological Club. No. 12, December, 1930.

The Interesting May of 1930. By Ludlow Griscom.—With daily lists for May 7, 14, 30.

Ipswich River Bird Trip. By Ralph Lawson.—114 species identified on May 17-18 by the party of twenty-seven, between Howe and Ipswich, Mass.

The Shooting Season of 1930 in Essex County. By Edward Babson.

Birds of A September Afternoon. By A. P. Stubbs.

Say's Phoebe in Essex County, Mass. By S. G. Emilio.

A Bluegray Gnatcatcher Family. By Philip Emerson.—Identity not positive, the nest being quite unlike that usually made by the species and

the location in northern Massachusetts is far beyond its known breeding range, as stated by the editors.

North American Birds of Accidental Occurrence in the British Isles. By S. G. Emilio.—A compilation with interesting comment.

Some Ocean Birds. By Francis H. Allen.

The Avifaunas of the Counties of Norfolk, England and Essex, Massachusetts Compared. By Charles W. Townsend.

The Post-breeding Northern Migration of North American Herons. By Charles W. Townsend.—It is pointed out that this migration is contrary to all the "rules" governing bird movements and that all influences supposed to govern the birds at this season call for travel in the opposite direction. The query is made as to why the older ornithologists did not mention this northward movement and it is inferred that possibly it did not occur in their time. As a matter of fact Wilson mentions the abundance of white Herons on the New Jersey marshes "all summer." Both the Little Blue and Snowy Herons bred there in his day and this would obscure any increase from the south, so that it is probable that the flight occurred then as it does now.

"Hawks is Hawks" but some are Mouse Traps. By John B. May.—A strong plea for Hawks. The quotation from Phillips and Lincoln quoted in this paper is most apropos but so bent are the sportsmen on their own killings that the Hawks are refused any consideration. The Duck Hawk, they say, "is such a magnificent bird, and possesses such mastery of the air, that the spectacle of one in pursuit of a swift-flying Teal or other duck should call forth the highest admiration of the observer, rather than a feeling of resentment coupled with a desire to kill the bird which is striving to do only that which the hunter himself has planned." It might be added that the Hawk is seeking food in the only way that nature has provided while man utterly unfitted by nature to catch ducks is really going out of his field and invading that of the bird!

Pursuit and Capture of Birds of Prey. By Charles W. Townsend.—Another plea for the Hawks.

Annotated List of Birds Observed by the Essex County Ornithological Club During 1930. By Arthur P. Stubbs.

The Cardinal. III, No. 1. January, 1931.

A Year on Southampton Island. By George M. Sutton.—With a sketch of King Eiders in flight.

The 1930 Expedition to Hudson Bay. By W. E. Clyde Todd.

Hummingbirds in Time of Drought. By Carl W. Schlag.

Woodcocks in a Dry Season. By Bayard H. Christy.

The Gull. Vol. 12, Nos. 8-12; Vol. 13, No. 1. August, 1930-January, 1931.

Field Observations at Las Posadas Camp, Napa Co., Calif. By Amy Rinehart. [September.]

The 1930 Trip to the Farallon Islands. By C. A. Bryant.—Other papers on the islands follow. [October.]

A Lagoon in September. By L. P. Bolander.—Moss Landing, Castroville, Calif. [November.]

Some Birds of Mt. Lassen Volcanic National Park. By Cornelia C. Pringle. [January.]

Bulletin Iowa Ornithologists' Union. VII, No. 7. July–September, 1930.

The Cory's Bittern and the Sennett's Nighthawk. By Mary L. Bailey.—A bird supposed to be this melanistic form of the Least Bittern was seen at Mud Lake, S. D. and another at Spirit Lake. In both cases it was in company with Least Bitterns which is additional evidence of its melanistic character. A Sennett's Nighthawk was also recorded, presumably at Sioux City, Iowa.

September at McGregor. By Drusilla E. Flagg.

The Wren-Tit. II, No. 4. October, 1930.

Bird lists and notes on field trips of the Santa Clara Valley Audubon Society, San Jose, Calif.

The Flicker (Mimeographed journal). II, No. 3. May–June, 1930.

Nesting of the Barred Owl. By Stanley Stein.

Spring Migration Dates at Minneapolis, Minn.

The Flicker (Mimeographed journal). II, Nos. 4–5. May–October, 1930.

The 1930 Nesting Season. By E. D. Swedenborg. List of nests found in the vicinity of Minneapolis.

Notes on Some Birds Seen in Western Minnesota. By Alden Risser.

Birding in Lac qui Parle. By Gustav Swanson.

The Raven (Mimeographed journal). I, Nos. 10–12; III, No. 1. October 1930–January, 1931.

Local notes on the birds of Virginia by the Virginia Society of Ornithology.

The Migrant (Mimeographed journal). I, Nos. 2, 3–4. September and December, 1930.

Notes etc., by members of the Tennessee Ornithological Society.

The Ibis. (13th Series). I, No. 1. January, 1931.

The Relation between the Gonads and the Secondary Sexual Characters in Vertebrates, especially in Birds. By G. J. van Oordt.—It is shown that males of the Domestic Fowl when castrated retain some secondary sexual characters while others, evidently dependent on the presence of the gonads, are lost or modified, so that a bird intermediate between normal male and female results. When a female is ovariectomized a similar bird is produced. Now Dr. van Oordt has produced the same change by castrating a male

Black-headed Gull (*Larus ridibundus*), the bird retaining the white headed winter plumage at all times showing that the black head as well as brighter bill colors, characteristic of the summer or breeding season, are dependent on the presence of the gonads. Grafting of sexual organs in castrated individuals in the Domestic Fowl has caused the return to normal condition and in some cases where grafting was done during molt the feathers show the two types combined, the distal part developed under the first condition and the proximal under the second.

Additional Notes on the Birds of the Falkland Islands and Dependencies. By A. G. Bennett.

Further Notes on the Birds of Corsica. By W. A. Payn.

The Birds of Northern Nigeria. By H. P. W. Hutson and D. A. Bannerman. Part II.

Additions and Corrections to the 'Systema Avium Australianarum.' By Gregory M. Mathews.

On the Geographical Variation of the Snow Bunting (*Plectrophenax nivalis*). By Finn Solomonsen.—*P. nivalis subnivalis* (Brehm) is revived for the Greenland bird, the Iceland form is named *P. n. insulae* (p. 64) and both *townsendi* and *hyperboreus* are considered subspecies of *nivalis*. In this paper as in the majority of recent systematic reviews and lists the so-called "typical" race (i. e. the one in which the specific name is duplicated) is wisely placed in its proper place systematically or geographically. In preparing the sequence in the new A. O. U. 'Check-List' this practice has been criticised and the claim that the form with duplicated name should stand first. As a matter of fact this race is no more typical (usually less so) than the others and differs only in that it was the first to be named. If a check-list is to be systematic, species and races as well as genera and families must be arranged in accordance with that principal. The only alternative is to arrange all chronologically which would bring together forms with no close relationship.

Some Evidence of the Nightingale Singing in Tropical West Africa. By D. A. Bannerman.

Communal Display in Hummingbirds. By E. M. Nicholson.

Bulletin of the British Ornithologists' Club. CCCXLIV. October 30, 1930.

C. B. Ticehurst discussed the downy plumage of the shore birds.

Lord Rothschild exhibited the hitherto unknown egg of the Paradise-Crow (*Lycocorax pyrrhopterus*) and also that of the Bird of Paradise (*Phonygammus keraudrenii*) which proves to be parasitic on another Paradise Bird (*Paradisea apoda*).

W. L. Sclater describes *Viridibucco coryphaea jacksoni* (p. 16) from Uganda while Kinnear and Whistler describe *Dendrocitta rufa vernayi* (p. 17) southeastern India and *D. formosae sarkari* (p. 17) Vizagapatam.

Bulletin of the British Ornithologists' Club. No. CCCXLV. December 3, 1930.

Notes on the Hill-Migrating Birds of Ceylon,. By George Brown.

Kinnear and Whistler propose *Sitta castaneiventris almorae* (p. 27) from Kumaon and Gahrwal Himalayas; D. A. Bannerman, *Glareola pratincola boweni* (p. 28) from Gambia, and G. M. Mathews, *Myiomoira macrocephala enderbyi* (p. 29) from Enderby Island and *Phoebastria nigripes reischekia* (p. 29) from New Zealand.

Bulletin of the British Ornithologists' Club. CCC XLVI. December 31, 1930.

The address of the chairman, Major Flower, takes up a large part of the number.

G. L. Bates describes twelve new birds from West Africa.

Bulletin of the British Ornithologists' Club. No. CCC XLVII. January 31, 1931.

Hartert and Levaudden describe *Nesillas typica monticola* (p. 56) from Madagascar and Dr. E. Mayr, *Ptiloprora plumbea granti* (p. 59) and *Pachycephalopsis hattamensis axillaris* (p. 59) from New Guinea.

British Birds. XXIV, No. 8. January, 1931.

Further Notes on the Breeding Habits of the Manx Shearwater. By R. M. Lockley.

Notes on the Birds of Scilly. By A. W. Boyd.

Incubation and Rearing of Young by Wood-Pigeon. By B. H. Ryves.

British Birds. XXIV, No. 9. February, 1931.

The British Birds Marking Scheme. By H. F. Witherby.—Progress for 1930.

Some breeding Habits of the Storm Petrel. By Seton Gordon.

Great Crested Grebe Inquiry. By T. H. Harrison. A coöperative investigation which should yield valuable results.

The Oölogists' Record. X, No. 4. December 1, 1930.

Nesting Notes from Northwest Canada. By T. E. Randall.

Notes on the Nesting Habits of the Gray Hornbill (*Lophoceros nasutus*). By C. R. S. Pitman.

Male Emerald Cuckoo (*Chrysococcyx c. intermedius*) Feeding Young. By A. G. Worman.

Nesting of the Cape Widgeon (*Nettion capense*) near Capetown. By R. M. Betham.

Nesting of the Gray-backed Storm Petrel. By A. G. Bennett.—*Garrodia neris chubbi* on the Falklands and South Shetlands.

Nesting Experiences in Northwest Canada. By H. W. Holben.

Photograph of the Long-tailed Nightjar (*Scotornis climacurus*).

The Bateleur. II, No. 4. October, 1930.

Notes on the Sharp-tailed Honey-guide. By Herbert Friedmann.

The Birds of Marsabit Mountain, Kenya Colony. By R. B. Sharpe.—An annotated list.

[On African Birds of Prey.] By A. H. P. W[ikes].

A New Francolin from Karamoja. Uganda. By H. F. S[toneham].—*Pternistes leucoscepus tokora* (p. 113).—While the practise of signing short notes with the author's initials, only, may be excusable, when it comes to descriptions of new forms only uncertainty ensues, although in the present case the full name may be inferred.

The Emu. XXX, Part 3. January, 1931.

Two Australian Flycatchers. By N. J. Favalaro.—With excellent colored plate of *Monarcha canescens* and *Carterornis leucotis*.

Proceedings of the Twenty-ninth Annual Congress of the R. A. O. U. Brisbane, 1930.—Followed by accounts of the excursions held in conjunction with the meeting, the address of the president E. A. Le Souef, and the district reports.

Desert Forms of Bird Life. By A. G. Campbell.—With distributional maps for several Australian desert forms.

A Singer of the Heath Country. By Norman Chaffer.—The Heath Wren (*Hylacola pyrrhopygia*).

Certain Introduced Birds of New Zealand. By Mrs. Perrine Moncrieff.

Notes on the Starling. By J. R. Kinghorn.—The Biological Survey and others interested in bird conservation and economic ornithology in America would do well to read this paper carefully. Mr. Kinghorn says "we must keep our eyes open and cast aside our prejudices . . . the Starling is a dirty nester, takes possession of the nesting sites of our native birds, eats fruit, seed, grain and insects. Here our problem begins, because we have the Starling with us for all time." All that he says is true of America also and the sociable character of the bird and its devouring of larvae of the Japanese beetle should not be taken as balancing the crowding out of our native species which is now in progress to a far greater degree than we realize.

The Birds of Creswick, Victoria. By H. W. Payne.

Additions to the Birds of Kapiti Island. By A. S. Wilkinson.

There are in this number many admirable halftone illustrations from photographs—including the Gray Kiwi, Owl Parrot, Heath Wren, Hooded Robin, etc.

Alauda. (Series I) II, Nos. 7-8. December 20, 1930. [In French.]

A Contribution to a Study of the Birds of Upper Savoy. By R. Poncy.

The Starling and Its Food. By P. Madon.

Preliminary Data on the Birds of the Western Sahara. By H. Heim de Balsac.

Bird Migration and Instinct. By M. Thomas.

Material for a Study of the Propagation of the Mistletoe by Birds. By H. Heim de Balsac and N. Mayaud.

Journal für Ornithologie. LXXIX, Heft 1. January, 1931. [In German.]

Observations on the Breeding Places of the Alpine Swift (*Micropus melba melba*). By M. Bartels.

The Rosy Starling (*Pastor roseus*). Its Habits and Economic Status in Turkestan. By M. K. Serebrennikov.—Both of these papers are illustrated by a number of admirable photographs.

The Distribution of Birds in the Southern Ural Mountains and Some New Subspecies from the Region. By S. Snigirewski.

Contributions to the Ethology of the Social Corvidae. By K. Lorenz.

On *Anthus richardi* and *A. striolatus* in China. By E. Stresemann.

Ornithologische Monatsberichte. XXXIX, No. 1. January-February, 1931. [In German.]

A Second Hybrid between *Delichon urbica* and *Hirundo rustica*. By H. Hampe.

On the Display of *Parotia sefilata*. By E. Stresemann.—Illustrated Preliminary Account of the Ornithological Results of the Heinrich Expedition of 1930-1931.—Ornithology of the Latimodjong Mountains of southern Central Celebes. By E. Stresemann.—*Heinrichia calligyna* (p. 9) gen. and sp. nov.; *Geomalía heinrichi* (p. 10) gen. and sp. nov. both of these new types belonging to the Brachypteryginae. In addition there are described *Erythrura trichoa sanfordi* (p. 12); *Chlorura hyperythra micro-rhyncha* (p. 12), *Collocalia francica sororum* (p. 12).

Numerous local notes on birds of Germany.

Beitrage zur Fortpflanzungs-biologie der Vogel. VII, No. 1. January, 1931. [In German.]

On the Breeding habits of *Panurus biarmicus biarmicus*. By C. G. B. Ten Kate.

New Biological Observations on the Herring Gull. By H. Noll.

On the Curlews and their Flight. By Erik Rosenberg.

Observations on the Nest of the Crane (*Megalornis grus grus*). By E. Bock.

Double-yolked Eggs. By H. Krohn.

Der Vogelzug. II, No. 1. January, 1931. [In German.]

Twelfth Report on Bird Observation at the Biological Station of Heligoland. By Rudolf Drost.

On Bird Migration in the North Sea Region based on Results of the International Observations in the Autumn of 1930. By R. Drost and E. Bock.

Old and New Experiments on the Sense of Direction of Birds. By E. Schuz.

On Bird Banding of the Forest Institute at Leningrad. By G. Doppel-mair.

Contribution to the Knowledge of the Autumn Flight Route of the Siskin.
By J. P. Bouma and J. C. Koch.

Jay Migration through eastern Neufahr-Danzig in the Autumn of 1930.
By W. Dobbrick.

Le Gerfaut. 1930. Nos. 2 and 3. [In French.]

Notes on bird observations on birds in Belgium, with an extended record of bird banding (No. 2).

Der Ornithologische Beobachter. XXVIII, Nos. 1, 2, 3, 4. October, 1930-January, 1931. [In German and French.]

Report of the Swiss Bird Observation Station at Sempach. By A. Schifferli.—With a summary of bird banding from 1924-1929. (October.)

On the Land Rail (*Crex crex*). By J. Bussmann. (November.)

Review of 'Oiseaux de la Suisse.' By O. Meylan. (November.)

On *Fringilla montifringilla*, By A. Mathey-Duprez. (December.)

Annual Report of the President of the Swiss Society for Bird Study.
By L. Pittet. (January.)

Tori. VI, No. 30. November, 1930. [In Japanese and English.]

Birds of Parry Group, Bonin Islands. By Y. Yamashina.

On a Collection of Bird-skins and Eggs from the Riu Kiu Islands. By K. Kobayashi.

Some Researches on the Breeding Habits of Cuckoos in Japan. By T. Ishizawa.

On a New Subspecies of *Prosteganura haagneri*. By Y. Yamashina.
[In English.]—*Prosteganura* (gen. nov.) for *Microchera* preoccupied *P. h. okadai* (p. 115).

A Collection of Birds made by Mr. H. Yoshida in Mexico. By N. Kuroda. [In English.]

A Small Collection of Birds from South Manchuria. By N. Kuroda.
[In English.]

Ardea. XIX, No. 3. December, 1930. [In Dutch.]

On the Breeding of *Phalacrocorax carbo sinensis* in Immature Plumage.
By F. Haverschmidt.

Some Birds which I saw in the United States of America. By C. H. Thiebo.

On the Food of the Gray Heron (*Ardea cinerea cinerea*). By N. Tinbergen.—Pellets contained along with other food three species of mice, a species of mole and a shrew.

Ornis Fennica. VII, No. 4. [In Finnish and Swedish.]

The Food Remains of the Eagle Owl. By K. E. Kivirikko.—Analysis of Pellets. [In Finnish.]

Pages from the Coot's Distribution in Finland. By E. W. Nyström and G. Idman. [In Swedish.]

Why do the Birds Strike against the Lighthouses. By S. Rodlin. [In Swedish.]

Notes on the Birds of Enontekiö [Finland]. By A. J. Kopperi. [In Finnish.]

A Study of the Biology of *Limosa lapponica*. By Boris Kasantzew. [In Finnish.]

The Avicultural Magazine. VIII, No. 12 and IX, Nos. 1 and 2. December, 1930–February, 1931.

Colored Plates of the Indian Shama, Schalow's Touraco and the Blue and White Kingfisher.

Death of an American Whooping Crane. By A. F. Moody.—In the Lilford Collection; the individual had been there for over thirty-eight years and was adult when secured. (January.)

Illustrated accounts of the Turkeys and Guinea Fowls by J. Delacour and A. Ghigi (January), of the Ostrich-like Birds by Delacour (February), and Mound-builders by Seth Smith (December).

Numerous accounts of the breeding of rare species in captivity.

L'Oiseau. XI, No. 11. November, 1930. [In French.]

Description of New Birds from Indo-China. By J. Delacour.—*Leioptila desgodinsi engelbachi* (p. 653); *Napothera brevicaudata proxima* (p. 654); *Strix leptogrammica ticehursti* new name for *S. l. orientalis* (p. 654).

Systematic History of the Toucans. By Guy de Germigny.

Devoted mainly to aviaries and aviculture.

Aviculture. (Series II) II, No. 12. III, Nos. 1 and 2. December, 1930–February, 1931.

Colored Plates of the Regent Bird of Paradise; Plumed Jay and blue variety of the Alexandrine Parrakeet.

Where is Home? By H. O. Lindsey.—Contains a record of spring arrivals at Grand Isle, sixty-two miles south of New Orleans. (January.)

These numbers abound in interesting notes on cage birds, aviaries, bird shows, etc.

Ornithological Articles in Other Journals.

Lewis, Harrison F. The Relation of Canada Geese and Brant to Commercial Gathering of Eel-grass in the St. Lawrence Estuary. (*Canadian Field Naturalist* March, 1931.)

Mousley, Henry. Notes on the Home Life of the Virginia Rail. (*Canadian Field Naturalist*, March, 1931.)

Mousley, Henry. A Further Study of the Home Life of the American Goldfinch. (*Canadian Field Naturalist*, December, 1930.)

Lewis, Harrison F. Unsuspecting Chickadees. (*Canadian Field Naturalist*, February, 1931.)

Critchell-Bullock, J. C. An Expedition to Subarctic Canada. (*Canadian Field Naturalist*, January and February, 1931.)

American Forests for March, 1931 has an attractive cover showing a flock of Swan bound north and some photographs of bird life in the Florida Everglades. The February issue has an article by A. H. Hadley 'With Fuertes in Florida.'

Bailey, Alfred M. The Piper of the Dunes. (*Natural History*, November-December, 1930.)—With beautiful photographs of the Piping Plover.

Mills, Herbert R. The Florida Brown Pelican. (*Florida Naturalist*, January, 1931.)

Grimes, S. A. 1930 Nesting Season Notes from the Jacksonville Region. (*The Florida Naturalist*, January, 1931.)

Terrill, L. McI. and Smith, Napier. Birds of the Razades and Basque Island. (*Annual Report of the Provancher Society*, 1930.)

Rintoul, L. J. and Baxter, E. V. Changes in the Status of Birds in Scotland in 1930. (*Scottish Naturalist*, January-February, 1931.)

Buxton, Anthony. An Appeal for the Birds of Prey. (*Bird Notes and News*, Spring, 1930.) Diana and Minerva—Harriers. Both these articles show the wide spread interest in England in the saving of what Hawks the game breeders have left us.

Alford, Charles E. Bird Life on Vancouver Island. (*Bird Notes and News*, Winter Number, 1930.)

CORRESPONDENCE.

Editor of 'The Auk.'

About twenty years ago, I began a study of the anatomy of the Tubinares. This work involved the examination of the literature of bird anatomy and the accumulation of a bibliography of about three thousand references.

Some years later, I sought advice concerning the best form for the bibliography of the monograph I was preparing. It was suggested to me that the bibliography be published separately so that it might be available for those who could not obtain the monograph. From Dr. E. W. Gudger came the suggestion that I consider the plan followed in that great work, the Dean Bibliography of Fishes, to which Dr. Gudger gave a very large amount of time.

It was not feasible for me to attempt a complete bibliography of the literature of birds. This would be more than a one-man job, and I did not find anyone interested in coöperating. The literature of birds is very much greater than that for fishes, and yet several persons coöperated in the preparation of the Dean bibliography. I was, however, much impressed with the usefulness of such a work.

The extensive topical classification of the Dean bibliography is of incalculable value, and I decided to attempt a similar analysis for the literature covered in my bird bibliography. This has involved examination of every publication included, whenever possible. I also decided to include physiology, behavior, and a few other subjects. Later, other fields were included until now only taxonomy and distribution are not fully represented. However, these two probably include 75% or more of the literature dealing with birds. I have not ignored them entirely but have included the names of important taxonomic works. Taxonomic bibliographies are also included.

At the time this communication appears, the typing of the author catalog, alphabetically arranged, will be in progress. There is still opportunity, however, for any persons who have not already done so, to send me references to *published* bibliographies of their contributions to ornithology, including all phases, and they will be exceedingly welcome.

No arrangements have yet been made for publication. It seems likely that a subsidy may be needed. Any suggestions as to how this may be obtained will be gladly considered. The monograph presents a much greater problem of expense of publication, as yet unsolved.

R. M. STRONG.

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OBITUARIES.

MAUNSELL SCHIEFFELIN CROSBY, a member of the American Ornithologists' Union since 1926 (associate from 1904) died suddenly at Rhinebeck, Dutchess Co., New York on February 12, 1931, of pneumonia, following an operation for appendicitis. He was a son of the late Judge Ernest H. and Fanny (Schieffelin) Crosby, families long prominent in New York State, with a notable descent from distinguished Colonial and Revolutionary ancestors. He was one of the very few Americans who could also have boasted (had he so chosen) that the Encyclopedia Britannica contained biographical sketches of his father and grandfather. He was born February 14, 1887 in New York City. His parents acquired the beautiful estate of Grasmere at Rhinebeck, when he was still a very small boy, and it was here that the greater part of his life was spent. He was fitted for college at a school in Morristown (N. J.) and by private tutors, and graduated from Harvard in 1908.

From then on Crosby took an active part in local civic affairs, and became widely known throughout his county as one of its most public-spirited citizens. He also joined the National Guard at an early age, and served on the military staff of Governor Whitman from 1915 during his term of office, and was promoted to a captaincy in 1917. During the Great War he served at Camp Mills near Garden City, Long Island in the Quartermaster's Department. While Captain Crosby was in charge there, Camp Mills had the distinction of having entrained more soldiers in one day than any other cantonment in the country. It is said that on that day early in 1918 an average of one thousand men with complete outfits entrained every five minutes. Crosby was disbursing officer, and was responsible for the enormous sums required to pay thousands of men, to equip many regiments, and to build bigger and more elaborate buildings. He elected to remain in the Officers Reserve Corps after demobilization, and was commissioned a Lieutenant Colonel in 1925. His military record was a long and honorable one.

Crosby was born interested in nature, the country, and outdoors, in part at least by inheritance from his father, with whom he used to go on long walking trips in his boyhood. His special bent for birds was, however, greatly fostered and directed by his life-long friend, Clinton G. Abbott, who acted as his tutor for some time in his youth. It was Abbott who induced him to join the A. O. U. and the Linnaean Society of New York in 1904, and who gave him a solid background of knowledge of local birds.

It was not until after the Great War that Crosby had a little more leisure, and he then became a regular attendant at Linnaean Society meetings and A. O. U. conventions. He immediately acquired a wide circle of acquaintances and friends, and was always a center of social gatherings at meetings and an organizer of trips afield. During the winter of 1920-21 he had

the good fortune to act as Dr. Dwight's personal assistant in New York. This gave him the valuable and much needed experience with museum specimens, and the systematic training derived from cataloguing and identifying birds from the whole of North and much of Central America.

It was at this time that he made warm friendships with professional ornithologists, and began a long series of carefully planned field trips to various parts of North and Central America. Chiefly with the writer of this sketch, he visited the coasts of Virginia and North Carolina, various parts of Florida, the coastal prairies of southern Texas, the jungles of eastern Panama and the mountains of Guatemala. In the case of the Panama trip, he was a member of an American Museum expedition, and proved as competent a collector as he had been an observer. It was he who obtained the type series of a new Hummingbird which bears his name. For his financial assistance and services on this expedition, he was elected a Patron by the Trustees, and later became one of the special lecturers of the Museum. At his death he was one of the few Americans who had seen in life or collected more than one thousand species of birds.

But above all he will be associated in the minds of his friends with Rhinebeck and Dutchess County, the country which he passionately loved. His trips afield always ended in homesickness for Grasmere, and he returned to the study of the birds of his "local region" with undiminished enthusiasm. It was here, then, that the two great interests of his life were perfectly combined. It was his good fortune and that of his friends that the Hudson River was full of ducks in spring and fall, and the Valley swarmed with great waves of Warblers and other transients in May and September. Crosby kept open house for ornithologists, and every week-end both spring and fall notable gatherings enjoyed his hospitality, and hunted for unusual birds under his expert leadership, infected with his own enthusiasm. From Boston to Washington an ever widening circle of A. O. U. members came to know Grasmere, and to hope for another invitation. His week-ends became an institution. Crosby was one of the most gifted field naturalists I have ever known. In keenness of vision he was perhaps equalled by several, but in keenness of hearing I have yet to meet his equal. His ability to hear and correctly identify the weaker, buzzy Warbler songs at a great distance was almost incredible, and quite beyond the capacity of the average individual.

Crosby wrote with difficulty and diffidence, but his list of publications is quite extensive. His most technical and lengthy paper was his study of the birds of the Brownsville Region of Texas, and the one most widely in demand his brochure on the birds of Dutchess County, still frequently listed in the catalogues of second hand dealers. In addition to these there are numerous notes and shorter articles in 'The Auk,' the Wilson Bulletin, Bird-Lore and the Year Books of the Rhinebeck Bird Club. He did not live to finish a much more elaborate and detailed treatment of the birds of Dutchess County, for which his data were complete.

With so wide a circle of friends and acquaintances in the Union, it is

perhaps appropriate to say a few closing words about the man as well as the ornithologist. Crosby was a thorough gentleman in the best sense of the word, well educated, well read and an excellent linguist. His outstanding characteristics were his easy charming manners, his unfailing courtesy, his conviviality, his ready wit and humor. Of more fundamental importance were his capacity for making friends, his unswerving loyalty to them, and his enormous reserve and courage. Well born, with ample means, a beautiful home filled with priceless heirlooms and an excellent ornithological library, he was generally esteemed a most fortunate man, who carried his privileges very gracefully. It was only after long years of association that one guessed or learned of the exacting and time-consuming financial duties as trustee and manager of estates, which prevented him from doing the things he really wanted to do, or heard of his personal sorrows, such as the death of his small son, wounds from which he never recovered. With growing affection and intimacy came a great respect.—
LUDLOW GRISCOM.

CARLOS AVERY, an Associate of the American Ornithologists' Union since 1925, died at his home in Rockville Center, Long Island, N. Y., Oct. 5, 1930. Death came suddenly just after he had returned from a walk in search of birds and was probably due indirectly to the shock sustained by his system in an automobile accident near Saginaw, Mich., several months before, while returning from his home in Minnesota.

Mr. Avery was born in Minooka, Ill., Jan. 25, 1868, and moved to Minnesota with his parents three years later. On graduation from school he began life as a teacher and was later appointed County Superintendent of Schools in McLeod County. Later he became publisher of the 'Hutchinson Leader' which he purchased in 1897. For a quarter of a century he has been actively identified with conservation. In 1906 he was appointed a member of the State Game and Fish Commission of Minnesota and a year later its executive agent, a position which he held for 13 years. In 1914 he organized the Gopher Camp Fire Club of Hutchinson which now has a membership of 2000, and was a prime mover in the establishment of the Minnesota refuge system. In 1924 he was a candidate for Governor of the State but was unsuccessful. In the same year he became vice president of the American Game Protective Association, and later, on the retirement of John B. Burnham succeeded him as president.

Mr. Avery had a deep and active interest in birds and wild life conservation. He was one of those quiet, tireless, but energetic workers who are most effective in accomplishing results. Ever ready to assist in any worthy movement or to act in any capacity, he filled a variety of offices, as secretary and president of the American Fisheries Society, vice president and president of the American Game Protective Association, member of the International Association of Game, Fish and Conservation Commissioners, of the National Committee on Wild Life Legislation, and of the Federal Advisory Board on Migratory Birds. He has been described as the foremost

game and fish commissioner in the United States and during his administration in Minnesota much was accomplished for effective bird protection and conservation, notably in the codification of the fish and game laws and in the establishment of the Superior State Game Preserve. He has taken an active part in every national movement for bird conservation since the campaign for the Federal Migratory Bird Law in 1912 and his death has created a vacancy that will be difficult to fill.—T. S. P.

DR. HIRAM BYRD, an Associate of the Union since 1925, died at Detroit, Mich., July 20, 1930, in his 56th year. Born in Blackshear, Georgia, August 3, 1874, he spent most of his later life in Florida, serving as special agent of the Florida Board of Health from 1903 to 1905 and as Assistant State Health Officer, from 1905 to 1913.

He was deeply interested in natural history and at one time kept a number of living rattlesnakes in captivity in order to study their habits. His particular interest, however, was in bird life, this being heightened, doubtless, by the enthusiasm of his wife for bird study and bird protection.

His interest in birds led to his election as president of the Florida Audubon Society (1925-1929) and his appointment as chairman of the committee on conservation of birds, game, and fish of the Florida State Chamber of Commerce (1926-1928). During a part of this period his wife was secretary of the Audubon Society and together they worked assiduously for its interests, and largely through their efforts the Tamiami Bird Reservation was established.

During his incumbency as president, he edited the Florida Audubon Bulletin—the predecessor of the 'Florida Naturalist,' and contributed a page of ornithological notes to several issues of the 'Florida Trucker' under the title "A Bird's-eye View." Apparently the only other ornithological paper he published was a short note on the Florida Jay in the 'Florida Naturalist' (vol. 1, p. 87, July, 1928).

The death of Dr. Byrd, soon after that of his wife,¹ removes from our midst two of Florida's most devoted bird lovers. A fuller account of his life and scientific accomplishments in medicine appeared in the 'Florida Naturalist' for October, 1930, from the pen of his son, Wallace Byrd.—ARTHUR H. HOWELL.

JAMES STEWART HINE.—Professor Hine an Associate of the American Ornithologists' Union since 1899 and latterly a Life Associate dropped dead from a heart attack in his home at Columbus, Ohio, December 22, 1930, in the midst of family preparations for Christmas. For Hine a better end than many another, for his family a tragedy. James S. Hine as he customarily subscribed himself was born at Wauseon, Ohio, June 13, 1866. The present writer is not informed as to his early history, but he was graduated from Ohio State University in 1893. Here he remained, being Instructor in Entomology 1894-1895, Assistant Professor from 1896 to

¹ See Auk, vol. 44, p. 162, January, 1927.

1902, Associate Professor of Zoology and Entomology from 1902 to 1927, and Curator of Natural History in the State Archaeological Museum from 1925 until his death.

Hine was one of the charter members of The Wheaton Club for the Systematic Study of Ornithology and Oology organized October 14, 1896 and named for Dr. J. M. Wheaton. He presented a paper at the second meeting of the Club and as a result of association with D. S. Kellicott, R. C. Osburn, and E. B. Williamson, became experienced in field ornithology. The Wheaton Club languished about 1901, but in 1921 was reorganized with Hine as president, a position he held for the next six years. A letter from one of the members to Mrs. Hine reads in part "He may perhaps be called the Father of the Wheaton Club. Without his encouragement the club would probably not have been organized or, if organized, would have been short lived and though the organization and the details of the management of the club were largely left to the enthusiasm of younger men, nevertheless his wise counsel and his guiding hand were present throughout its history."

Hine's only published bird papers appear to be the following: "Birds of the Katmai Region," *Ohio Jour. Sci.* XIX, pp. 475-486, 1919; "Sabine's Gull in Ohio," *Auk* XLIV, p. 241, 1927; and "The Red Phalarope," *Auk* XLV, p. 94, 1928.

Hine published on mammals, on horticulture, and on entomology. The latter subject was his chief interest and his papers on the classification of the robberflies and horseflies especially are sound contributions to science. He took part in scientific expeditions to Central America, Mexico, Cuba, and the Katmai region, Alaska, and did summer work at biological stations in Louisiana and Ohio.

After transferring to the Museum, a position into which he fitted perfectly, he was able to draw funds and collections to its support. Of ornithological interest are the J. M. Wheaton Collection, part of Oliver Davie's material, the collections of bird skins of Theodore Jasper, and of W. S. Henninger, and that of eggs assembled by R. B. Bales. The W. L. Dawson ornithological library also was secured.

Hine was a member of a honey-producing company and active in the Ohio Beekeepers Association for many years; he was one of its founders and served in all the principal offices. He was interested in horticulture also and maintained an apple orchard in the neighborhood of Akron. He is survived by Mrs. Abbie Parker Hine and by four children, Vernon, Gaylord, Marvin, and Dorothy.

When the writer heard of Hine's death he asked for the privilege of preparing an obituary notice for 'The Auk.' The reason was that Hine had in such full measure some of the good characteristics with which we might wish all were richly endowed. Of him we can sincerely say: Absolutely modest and unassuming; thorough and painstaking in his own work, yet ever ready to lay it aside when he could be helpful to others; one who actually did help a great many people, especially his younger associates

whom he both aided and inspired; one who was always "just folks." and one to whom peculiarly applied that good old-fashioned expression "he was always just the same."—W. L. M.

ROBERT HAMILTON SOUTHARD, who became an Associate Member of the American Ornithologists' Union in 1927, passed away in Newark, N. J., August 5, 1928.

Mr. Southard was born in Newton, N. J., Jan. 26, 1878. His father was Hon. Milton I. Southard, for many years a member of the United States House of Representatives and it was in Washington that he met Miss Virginia Hamilton who became his wife. The family later removed to Brooklyn, N. Y., where Robert was brought up. He prepared for college at the Brooklyn Latin School and the Brooklyn Polytechnic School. Graduating from Princeton University in the class of 1899, he entered Columbia Law School in the fall of that year, and graduated in 1902. In the latter year he was admitted to the New York Bar and practised law in New York as a member of the firm of Burke, Burrell and Southard. He was married to Miss Henrietta Bigelow of Newark, New Jersey, November 9, 1910. Mr. Southard removed to Newark in 1906, where he was admitted to the New Jersey Bar and practised law. During the final years of his practise he was on the legal staff of the Public Service Corporation of New Jersey.

From as early an age as ten, Robert Southard evinced a great interest in nature and particularly in birds. As has been the case with so many ornithological students in the beginning, he made a collection of birds' eggs, but unlike many boys who have done this as a passing fad, Robert took it seriously, almost from the first keeping careful and elaborate notes regarding the birds with which he thus came in contact.

Although his home life was largely that of a city boy, he spent all the time he could in the country. His vacations, week-ends and holidays were almost invariably spent about Newton, where he either stayed at the home of his grandfather, Col. Robert Hamilton, or with his cousins, the Inslees. One of these five brothers, Stephen D. Inslee, was not far from Robert's age and the egg collection which was formed was a partnership affair between the two. It grew into an exceptionally representative collection of the eggs of Sussex County birds, containing few that were not taken in the County.

When insidious tuberculosis undermined Mr. Southard's health he went to Saranac, N. Y., and being greatly benefited, returned to his Newark law practice. Again suffering from the dread complaint he spent a second period at Saranac, where the few eggs in the collection not native to Sussex County, N. J., were found. His health failed to respond so well to this second sojourn there and he tried Arizona for a year, returning to Newark in May, 1928. All through his long illness which he fought with unflinching courage, his keen interest in birds and their ways never lessened. This interest helped to keep his mind from dwelling on the great disappointment that his failing health deprived him of the active legal career for which he was so well fitted both in training and exceptional ability.

Besides his widow, he left a daughter, Lila Fowler Southard, and many warm friends including comrades of bird study trips.—B. S. BOWDISH.

HARRY WOLSTENHOLME, an Associate of the American Ornithologists' Union since 1928, died at Wahroonga, Sydney, Australia, Oct. 14, 1930. He was born at Maitland, New South Wales, in 1868. After graduating from Sydney University he took up the practise of law, to which he devoted the best years of his life, until failing health compelled his retirement several years ago. At the time of his death he was a member of the Council of the Royal Australasian Ornithologists' Union and a trustee of the New South Wales National Park 'Kurin-gai Chase.'

For ten years or more he contributed to the pages of 'The Emu' principally notes on native birds found about his home at Wahroonga, but in 1924 he published the annotated list of birds observed on the R. A. O. U. expedition to Yeppoon, Queensland, and in 1925 a comparison of British and Australian birds based on observations made during a visit to England.

Probably Wolstenholme's most important ornithological contribution and the one of most general interest was his Appendix to the second edition of the 'Official Check List of Australian Birds,' 1926. In this closely-printed chapter of 26 pages dealing with the scientific names of Australian birds he gave the derivation and pronunciation of generic and specific names, the origin of proper names and other items of general interest. Such a contribution would be a great addition to the forthcoming 'Check-List of North American Birds,' but unfortunately as yet no Wolstenholme has volunteered to prepare it.—T. S. P.

VICTOR JUSTICE EVANS, an Associate of the American Ornithologists' Union since 1927, died of heart disease in Washington, D. C., Feb. 1, 1931, in his 66th year. He was born in Delaware, Ohio, May 20, 1865, and spent his early years in Minnesota. He removed to Washington in 1880 and 18 years later established the patent law firm of Victor J. Evans & Co. which soon expanded until it maintained branches in several cities. Mr. Evans' interest in collecting Indian relics brought him in touch with various tribes and ultimately resulted in his selection as counsel for several of them. Prospering in his Indian and patent law practise as well as in his real estate investments, he was in a position to gratify to the utmost his interest in his hobbies.

He took a deep interest in the larger and more conspicuous birds and mammals and knew the characteristics and value of many of the rarer species. He kept in touch with the principal importers and with the officials of zoological gardens and menageries and was a patron of the National Zoological Park to which he presented many specimens. In his later years he began to develop his ideal of a private collection and in 'Acclimation Park,' a 25 acre tract on the western outskirts of Washington he assembled the nucleus of a notable collection containing a number of rare species. Increasing ill health prevented the consummation of his plans and at his death his collection was bequeathed to the National Zoological Park.

Mr. Evans made a host of friends through his cordial though quiet manners but unfortunately, because of modesty or diffidence, published little or nothing from his store of knowledge of birds and mammals.—T. S. P.

JEAN DYBOWSKI, an eminent French agricultural expert, whose name is connected with the ornithology of the French Congo, died at Mandres, Seine-et-Oise, France, on December 18, 1928. He was in his 72nd year, having been born on April 28, 1856, at Charonne, Seine, France. He was the third of six children of a family of Polish origin. After studying classics at the Lycée Charlemagne he entered the École Nationale d'Agriculture at Grignon, from which school he received his diploma in 1877. Some years later he made his first extensive journey, chiefly botanical, to southern Algeria, and in 1891 he made the voyage for which he will be remembered in ornithological circles. This trip took him to the French Congo, where he traveled in the Ubangi and Kouti areas and collected birds as time and other duties permitted. He was an omnivorous collector, and returned to France in 1892 with much material of all sorts for the museum in Paris. The birds formed the basis of four papers by Oustalet, all of which were published in the journal 'Le Naturaliste,' two in vol. 14, 1892, p. 218, and pp. 231-232, and two in vol. 15, 1893, pp. 59-61, 125-129. Two new species were included in the collections, both of which were named in his honor,—*Francolinus dybowskii*, and *Lagonosticta* (now *Clytospiza*) *dybowskii*. Oustalet also named a genus *Dybowskia* in his honor, but this name being preoccupied is now a synonym of *Heliolais*.

In 1893, partly at his suggestion and instigation, the Institut National Agronomique was founded by M. Tisserand, then minister of agriculture, and Dybowski was appointed to a professorship there, which post he held, with only temporary interruptions, for some 34 years. In 1896 he was appointed director of agriculture and commerce for the regency of Tunis. This appointment showed its fruitful results in the founding, in 1898, of the first colonial school of agriculture. At the end of 1896, together with his friend M. Milne Edwards, the director of the natural history museum in Paris, he established a botanical and agricultural garden to show and study the plants and agricultural problems of the French colonies. In 1902 this became the "École Nationale Supérieure d'Agriculture Coloniale" of France.

Dybowski received many honors during his active life, among others that of election as an Officer of the Legion d'Honneur. He was the author of several books dealing largely with his favorite subject of colonial (tropical) agriculture, but his "La Route du Tchad," published in 1893, deals with his travels and observations in French Equatorial Africa.

A fairly detailed account of his life has been published by Emile Prudhomme, in the Annales de L'Institut National Agronomique, Paris, vol. xxii, 1929, pp. 27-31, from which the above is largely extracted.—HERBERT FRIEDMANN.

BENEDICT IVANOVICH DYBOWSKI, an eminent Polish zoologist, died in Lemberg, Poland, Jan. 31, 1930, at the age of 96 years, 9 months, and one day. He was born in the Province of Minsk, Russia, April 30, 1833, and at the time of his death held the world's record of longevity among ornithologists, having exceeded the age of the Swedish ornithologist, Sven Nilsson, by 9 days and that of the English ornithologist, John Latham, by 53 days. At an early age he showed an interest in natural history. His education was begun at the gymnasium at Minsk, and later he studied medicine and natural history in the universities of Dorpat, Breslau, and Berlin. At the age of 23 he received a gold medal on the appearance of his first scientific paper, and in 1862 on the basis of a monograph of the *Cypripinidae* of Latvia was appointed Professor of Zoology in the University of Cracow. His tenure of this position was brief. His activities in connection with the movement in behalf of the freedom of Poland resulted in his arrest, and in 1864 he was condemned as a political conspirator to 15 years of hard labor in the Nerchinsk mines in eastern Siberia. During the next few years he was in Siwakowa, not far from Czyte on the Ingoda River, and later in Darasun on the Tura, on the east ranges of the Stanovoi Mountains. In 1867 he settled in Kultuk at the southwest end of Lake Baikal not far from Irkutsk and for nearly three years explored the surrounding region. The following year as a companion of Gen. J. S. Skolkow he joined an expedition to the Amur and Ussuri Rivers and reached the east coast of Siberia. After his return he undertook another expedition to study the fauna of the lower regions of the Onon and Argun Rivers northeast of Nerchinsk. From 1872 to 1875 he made still other trips in the coastal region. On one occasion he traveled in a boat built by himself on the Argun and Amur and landed in Blagovestchensk in Manchuria. On the way he visited Lake Chanka, finally reached Vladivostok and explored the coastal region of Manchuria. In 1875 he returned to Irkutsk and from there went to Kultuk to continue his investigations on Lake Baikal.

In 1876 through the efforts of his friends he was pardoned and had an opportunity to return home but soon decided to accept an appointment as district surgeon in Kamchatka and continue his investigations in Siberia. He set out for his post in 1878 with Jean Kalinowski and after six months' journey arrived in Petropavlovsk. It was here that Dr. Leonhard Stejneger met him in June, 1882. For some years Dybowski continued his work in Kamchatka, made several visits to the Commander Islands and in 1883 returned home from Siberia. In 1884 he was appointed to a professorship in the University of Lemberg, a position which he held until his retirement in 1906. During this time he published various works in biology, especially in comparative anatomy, systematic and faunal zoology and anthropology. The results of his ornithological work appeared not only in his own publications but also formed the basis of Taczanowski's monograph entitled 'Faune ornithologique de la Sibirie orientale' in two volumes, 1891-93, as well as numerous articles in the 'Journal fur Ornithologie' from 1869 to 1881. A considerable number of his birds, especially from

the region of Lake Baikal, were acquired by the Zoological Museum in Berlin.

Dybowski's memory has been perpetuated in the names of several species of vertebrates among which may be mentioned *Cervus dybowskii*, a Manchurian deer; *Siphneus dybowskii*, a vole-like animal; *Otis tarda dybowskii*, a bustard; *Locustella dybowskii*, a warbler; *Eriocnemis dybowskii*, a South American humming bird, and *Rana dybowskii*, a Siberian frog. Several genera have also been named in his honor, including *Benedictia* W. Dybowski, 1875, a genus of Mollusca; *Dybowskyia* Jakowlow, 1876, a genus of Rhynchophora; *Dybowskiella*, Waagan and Wentzel, 1886, a genus of Bryozoa; *Dybowskia* Garjageff, 1901, a genus of Amphipods; and *Dybowscella* Nusbaum, 1901, a genus of Polychaete.

A more complete account of his work and a portrait may be found in, the 'Russ. Hydrobiol. Zeitschrift,' VI, pp. 121-127, 1927.—T. S. P.

CLEMENT WALKER ANDREWS, Librarian Emeritus of the John Crerar Library, and an Associate of the American Ornithologists' Union since 1924, died after a protracted illness, in Chicago, Ill., Nov. 20, 1930. He was the son of Gen. Joseph and Judith Walker Andrews and was born at Salem, Mass., Jan. 13, 1858. He attended the Boston Latin School, graduated from Harvard University in the class of 1879, and in the following year received the degree of A.M. Later, in 1911, Northwestern University conferred upon him the degree of LL.D. Soon after graduation he became associated with the Massachusetts Institute of Technology as instructor in chemistry from 1883 to 1885, and during the last six years while acting as librarian he reorganized the library.

In 1895 Andrews received an appointment as librarian in the recently-established John Crerar Library in Chicago, a position which he filled with honor to himself and to the institution for 28 years, until ill health compelled his retirement. While not an ornithologist he had a remarkably broad knowledge of the literature of science and built up one of the finest scientific libraries in the West, and one which included many rare books on ornithology. This library has become widely known by reason of its completeness, its catalogue, and its well-organized collections on various subjects. Dr. Andrews was a scholar, a man of high ideals, and a hard worker, but his chief publications seem to have been his reports and contributions to library journals. He was unmarried and found both his life work and his relaxation in building up the institution for whose organization he was so largely responsible. In addition to his onerous official duties he found time to prepare a local union list of serials and to take an active part in the affairs of the American Library Association. A more extended account of his activities prepared by his successor, J. Christian Bay, may be found in 'Libraries,' Vol. 36, pp. 1-5, Jan., 1931.—T. S. P.

JOSEPH PARKER NORRIS, JR. for many years an Associate of the Union, died at his home in Philadelphia on January 18, 1931, after an illness of

several months. Mr. Norris, a member of one of Philadelphia's oldest families, was born February 9, 1871, son of Joseph Parker and Isabel Nevins Fry Norris, and a descendent of Isaac Norris member of the Pennsylvania Assembly, 1699-1703, Judge of the Court of Common Pleas and Mayor of Philadelphia, 1724.

Mr. Norris was educated in the Philadelphia schools, was at one time editor of the 'American Cricketer' and did other editorial work, while for a number of years past he has been secretary of the County Board of Viewers of Philadelphia. He was prominent in various social activities and was originator and chairman of the Bal Masque one of the leading social events in Philadelphia society.

Mr. Norris's hobby was the collecting of birds' eggs. He inherited his father's notable collection of North American eggs and devoted his entire leisure time to enlarging it and adding series of eggs from Europe, India, Australia, Africa and every part of the world from which it was possible to secure specimens. The result was what is probably the largest private collection of eggs in America if not in the world, numbering over 100,000 specimens. In early years Mr. Norris contributed papers on the eggs of many of our native birds to the 'Ornithologist and Oologist,' of which his father was one of the editors, while more recently he has been a contributor to the 'Oologists' Record', the leading British journal dealing with oology. Besides his egg collection Mr. Norris had formed a valuable ornithological library devoting himself mainly to acquiring handsome illustrated works on the birds of all parts of the world.

He was a member of the Academy of Natural Sciences of Philadelphia, the Delaware Valley Ornithological Club, Pennsylvania Historical Society, Sons of the Revolution, Racquet Club, etc.

He is survived by his widow formerly Miss Mary Rawlings Brady, and three daughters.—W. S.

NOTES AND NEWS.

BEGINNING with the Thirteenth Series of 'The Ibis' C. B. Ticehurst takes over the editorship with G. M. Mathews, Rev. F. C. R. Jourdain and D. A. Bannerman, as Regional Assistants.

At the Annual General Meeting of the British Ornithologists' Club, Mr. W. L. Sclater was presented with the Godman-Salvin Medal. With the close of the year 1930 he had completed eighteen years' editorship of 'The Ibis' and had brought out his notable 'Systema Avium Aethiopicarum,' achievements which in themselves merit the award, aside from his many other accomplishments in ornithology. All American ornithologists will join in hearty congratulations to Mr. Sclater.

DR. ERNST MAYR has returned from the Whitney South Sea Expedition and entered upon his duties at the American Museum of Natural History. He is at present working on the birds of the Solomon Islands.

HAROLD LESTER MADISON, who has been Acting Director of the Cleveland Museum of Natural History since 1928, has been recently appointed Director of the Museum.

DR. JOSSELYN VAN TYNE of the Museum of the University of Michigan left early in the year for Guatemala where he will be occupied in field work for several months

PROF. PARKE HARDY STRUTHERS, in charge of the Syracuse Andean Expedition and accompanied by ten assistants, sailed Dec. 31 for Puerto Cabello, Venezuela. From that point the party proceeded inland to Merida intending to explore the Sierra Nevada. The expedition will collect birds and other vertebrates and expects to be in the field six months.

THE A. O. U. Committee on Arrangements for the Detroit meeting, of which Mrs. Etta S. Wilson is chairman, held its organization meeting Feb. 18. The Book-Cadillac Hotel was selected for headquarters where ample accommodations will be provided for the various sessions. The meetings will be held from Oct. 19 to 23. A day will be spent in Ann Arbor, at the University of Michigan, and after the close of the regular sessions, excursions to points of interest in the vicinity of Detroit will probably occupy the remainder of the week. The present indications are that the Detroit meeting will be largely attended and highly successful.

THE Provancher Society of Natural History, which initiated the invitation to the Union to meet in Quebec in 1932, has recently issued its annual report in which formal announcement is made of this meeting. Although the Committee on Arrangements has not yet been appointed Dr. D. A. Déry, President of the Society and others have already been considering plans which indicate that the Union will receive a most cordial welcome when it meets in Quebec.

THE Museum of Comparative Zoology announces that the first volume of a Check-List of the Birds of the World by James Lee Peters is now in press and will be issued shortly.

The classification followed for the higher groups is that proposed by Dr. Wetmore, with the sequence of genera and species according to the author's own ideas where no authoritative treatment has been published. The first volume will contain about three hundred genera and one thousand seven hundred species and subspecies covering the following orders:

Struthioniformes	Gaviiformes
Rheiformes	Colymbiformes
Casuariiformes	Procellariiformes
Apterygiformes	Pelecaniformes
Tinamiformes	Ciconiiformes
Sphenisciformes	Anseriformes
	Falconiformes

The only recent attempt to list most of the species in these groups was that made in the first volume of Sharpe's 'Hand-list' published in 1899 and consequently now thirty-two years old and out of date.

It is expected that at least ten volumes will be required to complete the work. The second volume is in active preparation and preliminary work on others is under way.

The new Check-List is *not* a Museum publication and will not be distributed to the Museum's exchange list, but will be sold by the Harvard University Press, who are the publishers.

Subscriptions are now invited and may be addressed to the Harvard University Press, Randall Hall, Divinity Avenue, Cambridge, Massachusetts. Price will be five dollars per volume.

DURING a recent visit to Florida—January 14 to February 1, 1931, Dr. W. C. Herman made a search for Spoonbills with the following results.

"We traveled by auto and boat, from Collier City to Key West and along the Gulf from the town of Everglades to the Shark river and up some of the numerous branches of this river for about forty miles. This region of the west coast of Florida is part of the 2000 square miles of the proposed "Everglades National Park" which we hope will materialize before most of the wild life has become decimated.

"After a careful search for the Spoonbill we regret to admit that this bird must be quite scarce, notwithstanding the reports of natives and other guides, especially in a seemingly uninhabited region. Large numbers—thousands—of Wood Ibis, White Ibis, American Egret and the Snowy Egret were seen. Just by chance we met two young men, natives of this region, who were camping on a nearby Key, I inquired whether there were any "Spoonbills" in the vicinity? The bird was unknown by this name but I was informed that a brother of one of the men had shot a "Pink Curlew" the day before and they had consumed the bird as part of the evening meal, adding that they are fine eating.

"Unless this area is well patrolled by competent wardens we will predict that the Spoonbill will follow the Flamingo."

THE Virginia Ornithological Society held its first annual meeting in Richmond on February 13, 1931. A field trip was taken to Curle's Neck Farm and addresses were made by Dr. Ruskin R. Freer, Dr. J. J. Murr, Charles O. Handley, J. P. Andrews, H. K. Job and M. G. Lewis.

The officers of the Society are Ruskin R. Freer, president; Charles O. Handley, vice-president; J. J. Murray, editor; Miss Florence Hagne, Secretary-treasurer.

THE Delaware Valley Ornithological Club held its forty-first annual meeting on January 8, 1931. The officers elected for the ensuing year were President, Dr. Samuel C. Palmer; Vice President, Julian K. Potter; Secretary, John A. Gillespie; Treasurer, Henry T. Underdown, and Chairman of the Editorial Board, J. Fletcher Street.

THE local committee for the Salem meeting of the A. O. U. was fortunate enough to have a balance on hand after all expenses of the meeting had been paid, and has generously contributed this to help meet the cost of publishing the account of the meeting in the January 'Auk.' This action is deeply appreciated by the editor and the Publication Committee.

THE Biological Survey has sent engrossed testimonials to seven persons who have sent in annual reports on bird migration for forty years or more. The recipients are as follows: S. R. Ingersoll, New Smyrna, Florida, 53 years; H. M. Micklem, Shipman, Va., 53 years; F. L. Burns, Berwyn, Pa., 47 years; C. S. Brimley, Raleigh, N. C., 46 years; E. L. Moseley, Bowling Green, Ohio, 45 years; W. W. Worthington, Long Island, N. Y., 44 years and F. F. Crevecoeur, Onaga, Kansas, 41 years.

In September, 1930, the following committee was appointed to prepare the Fourth Ten-year Index to 'The Auk': H. S. Swarth (chairman), Clinton G. Abbott, F. N. Bassett, Mary E. Davidson, R. C. McGregor, G. Dallas Hanna, M. P. Skinner, T. I. Storer, and George Willett. Work was begun at once. The third Ten-year Index was taken as a model and the only deviation from that standard will lie in the addition of a few topical subject headings that are not included therein. The chairman of the present committee, after detailed study of the previous Index volumes has nothing but admiration to express for them, and a feeling that a high standard has been set thereby that it will be difficult to sustain. The present committee is composed of busy people who cannot work regularly or for long periods at this task, but it is hoped that the several volumes will be indexed by May or June. By the fall or winter of 1931 the manuscript of the entire Index should be ready for the printer.

As we go to press we learn of the signing by President Hoover of the amendments to the migratory bird regulations. The season for Ducks,

Geese, Brant, Coots, and Wilson's Snipe will be shortened fifteen days in the future. For the northern states it will be October 1 to December 31; for Long Island, New Jersey, Delaware, Oklahoma, New Mexico, Arizona, and part of Texas, October 16 to January 15; for Maryland, District of Columbia, Virginia, North and South Carolina, Georgia, and from Kentucky and Arkansas to the Gulf Coast, November 1 to January 15; and in Florida November 20 to January 15.

The bag-limit on Geese (including Brant) is reduced to four a day while a permanent closed season is declared on Roos's Goose and Cackling Goose anywhere, and Snow Geese in all states bordering on the Atlantic Ocean.

While the Woodcock season has been slightly changed in New York it remains the same in New Jersey where thousands of migrant Woodcock are killed each year when they, under certain conditions, congregate at the end of the Cape May Peninsula. This outrageous slaughter will continue unless steps are taken by State or Federal authorities to check it. If it were possible to establish Cape May Point as a sanctuary the slaughter of both Woodcock and Hawks could be stopped or if Federal wardens could be on duty there at the time of the flights the illegal shooting which is responsible for most of the killing and which is now unrestrained could be halted.

DR. ALEXANDER WETMORE and Frederick C. Lincoln sailed for Haiti on March 17, to carry on further investigations of the bird-life of the island. They expect to return about June 1.

THROUGH an unfortunate typographical error on p. 90 of the January 'Auk,' Mr. H. Mousley's name appeared "Monsky."

OFFICERS AND COMMITTEES OF THE AMERICAN ORNITHOLOGISTS' UNION, 1931.

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FLEMING, JAMES H. }	" 1931
PALMER, THEODORE S., <i>Secretary</i>	" 1931
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OBERHOLSER, HARRY C.....	" 1931
PETERS, JAMES L.....	" 1931
RICHMOND, CHARLES W.....	" 1931
ROBERTS, THOMAS S.....	" 1931
TAVERNER, PERCY A.....	" 1931
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WETMORE, ALEXANDER, 1926-29.....	

EDITORIAL STAFF OF 'THE AUK.'

STONE, WITMER, <i>Editor</i>	November, 1931
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APRIL, 1931.¹

FELLOWS.

*Life Fellow.

	Date of Election
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ANTHONY, ALFRED WEBSTER, 3947 Center St., San Diego, Calif.	(1885) 1895
BAILEY, MRS. FLORENCE MERRIAM, 1834 Kalorama Road, Washington, D. C.....	(1885) 1929
BANGS, OUTRAM, Mus. Comp. Zoology, Cambridge, Mass.....	(1884) 1901
*BARBOUR, DR. THOMAS, Director Mus. Comp. Zoology, Cam- bridge, Mass.....	(1903) 1929
BATCHELDER, CHARLES FOSTER, Peterborough, N. H.....	Founder
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CHAPIN, DR. JAMES PAUL, Am. Mus. Nat. Hist., New York, N. Y.....	(1906) 1921
CHAPMAN, DR. FRANK MICHLER, Am. Mus. Nat. Hist., New York, N. Y.....	(1885) 1888
DEANE, RUTHVEN, Room 813, 112 W. Adams St., Chicago, Ill.....	1883
FISHER, DR. ALBERT KENRICK, Biological Survey, Washington, D. C.....	Founder

¹ By order of the Council names of Members are given in full. Members are requested to advise the Secretary of any errors and to furnish information regarding any names still incomplete.

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* Dates in parentheses indicate dates of joining the Union.

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 Can..... (1893) 1916
- FRIEDMANN, DR. HERBERT, U. S. Nat. Mus., Washington, D. C. (1921) 1929
- GRINNELL, DR. GEORGE BIRD, 238 E. 15th St., New York, N. Y. .1883
- GRINNELL, DR. JOSEPH, Mus. Vert. Zool., Univ. Calif., Berkeley,
 Calif..... (1894) 1901
- GRISCOM, LUDLOW, Mus. Comp. Zool., Cambridge, Mass. . . . (1908) 1925
- GROSS, DR. ALFRED OTTO, Bowdoin College, Brunswick, Maine. (1907) 1930
- HOWELL, ARTHUR HOLMES, 2919 South Dakota Ave., Washing-
 ton, D. C. (1889) 1930
- JONES, LYND, 352 West College St., Oberlin, Ohio. (1888) 1905
- KALMBACH, EDWIN RICHARD, Biol. Survey, Washington, D. C. (1910) 1927
- *MAILLIARD, JOSEPH, 1815 Vallejo St., San Francisco, Calif. . . . (1895) 1914
- MCATEE, WALDO LEE, Biological Survey, Washington, D. C. . . (1903) 1914
- *MCGREGOR, RICHARD CRITTENDEN, Bureau of Science, Manila,
 P. I. (1889) 1907
- MERRIAM, DR. CLINTON HART, 1919 16th St., N. W., Washing-
 ton, D. C. Founder
- MILLER, DR. LOYE HOLMES, Univ. Calif. at Los Angeles, Calif. (1918) 1930
- MURPHY, DR. ROBERT CUSHMAN, Am. Mus. Nat. Hist., New
 York, N. Y. (1905) 1920
- NELSON, DR. EDWARD WILLIAM, Cosmos Club, 1520 H St.,
 N. W., Washington, D. C. 1883
- *OBERHOLSER, DR. HARRY CHURCH, Biological Survey, Wash-
 ington, D. C. (1888) 1902
- OSGOOD, DR. WILFRED HUDSON, Field Mus. Nat. Hist., Chicago,
 Ill. (1893) 1905
- *PALMER, DR. THEODORE SHERMAN, 1939 Biltmore St., N. W.,
 Washington, D. C. (1888) 1901
- PETERS, JAMES LEE, Harvard, Mass. (1904) 1927
- *PHILLIPS, DR. JOHN CHARLES, Wenham, Mass. (1904) 1925
- RICHMOND, DR. CHARLES WALLACE, U. S. Nat. Mus., Washing-
 ton, D. C. (1888) 1897
- RILEY, JOSEPH HARVEY, U. S. Nat. Mus., Washington, D. C. . (1897) 1919
- ROBERTS, DR. THOMAS SADLER, Univ. Minnesota, Minneapo-
 lis, Minn. 1883
- SAUNDERS, WILLIAM EDWIN, 240 Central Ave., London, Ont., Can. . . 1883
- *STONE, DR. WITMER, Acad. Nat. Sciences, Philadelphia, Pa. (1885) 1892
- SWARTH, HARRY SCHELWALDT, 2800 Prince St., Berkeley, Calif. (1900) 1916
- TAVERNER, PERCY A., National Mus., Ottawa, Ont., Can. . . . (1902) 1917
- TODD, WALTER EDMOND CLYDE, Carnegie Mus., Pittsburgh,
 Pa. (1890) 1916
- TOWNSEND, DR. CHARLES WENDELL, Ipswich, Mass. (1901) 1923
- *WETMORE, DR. ALEXANDER, U. S. Nat. Mus., Washington,
 D. C. (1908) 1919
- WIDMANN, OTTO, 5105 Enright Ave., St. Louis, Mo. 1884

RETIRED FELLOWS.

- FISHER, PROF. WALTER KENRICK, Hopkins Marine Sta., Pacific Grove, Calif. (1899) 1920
 SHUFELDT, DR. ROBERT WILSON, 1803 Biltmore St., N. W., Washington, D. C. (Founder) 1927
 STEJNEGER, DR. LEONHARD, U. S. Nat. Mus., Washington, D. C. (1883) 1911

HONORARY FELLOWS.

- ARRIGONI DEGLI ODDI, COUNT ETTORE, Univ. of Padua, Padua, Italy. (1900) 1930
 BAKER, EDWARD CHARLES STUART, 6 Harold Road, Upper Norwood, London, S. E. 19, England. (1918) 1920
 BUTURLIN, SERGIUS ALEXANDROVICH, c/o Prof. S. I. Ognev, Zool. Mus., 1st University, Moscow, U. S. S. R. (1907) 1916
 CLARKE, DR. WILLIAM EAGLE, 8 Grosvenor St., Edinburgh, Scotland (1889) 1921
 DABBENE, DR. ROBERTO, Museo Nacional Historia Natural, Casilla de Correo, 470, Buenos Aires, Argentina. (1916) 1918
 DELACOUR, JEAN THEODORE, Château de Clères, Seine Inférieure, France. (1920) 1928
 EVANS, DR. ARTHUR HUMBLE, Cheviot House, Crowthorne, Berks, England. (1899) 1917
 HAAGNER, ALWIN KARL, Zool. Depot, Hamanskraal, Dist. Pretoria, Transvaal, South Africa. (1916) 1918
 HALL, ROBERT, Tasmanian Museum, Hobart, Tasmania. (1916) 1923
 HARTERT, DR. ERNST [JOHANN OTTO], Wohnung 107, Albrechtstr. 60B, Berlin-Südende, Germany. (1891) 1902
 HELLMAYR, DR. CARL EDUARD, Field Mus. Nat. Hist., Chicago, Ill. (1903) 1911
 JOURDAIN, REV. FRANCIS CHARLES ROBERT, Whitekirk, 4 Belle Vue Road, Southbourne, Bournemouth, England. (1918) 1921
 KURODA, DR. NAGAMICHI, Fukuyoshi Cho, Akasaka, Tokyo, Japan (1918) 1921
 LÖNNBERG, DR. [AXEL JOHAN] EINAR, Naturhistoriska Riksmuseum, Vetenskapsakademien, Stockholm, Sweden. (1916) 1918
 LOWE, DR. PERCY ROYCROFT, Brit. Mus. (Nat. Hist.), Cromwell Road, London, S. W. 7, England. (1916) 1920
 MATHEWS, GREGORY MACALISTER, Meadway, St. Cross, Winchester, Hants, England. (1911) 1927
 MEINERTZHAGEN, COL. RICHARD, 17 Kensington Park Gardens, London, W. 11, England. (1916) 1928
 MENEGAUX, DR. HENRI AUGUSTE, Museum d'Histoire Naturelle, 55 Rue de Buffon, Paris, France. (1916) 1918
 PYCRAFT, WILLIAM PLANE, British Museum (Nat. Hist.), Cromwell Road, London, S. W. 7, England. (1902) 1911

- REICHENOW, DR. ANTON, Moltkestr. 7, Hamburg 30, Germany. (1884) 1891
 ROTHSCHILD, LORD LIONEL WALTER, Zoological Museum, Tring, Herts,
 England. (1898) 1913
 SCLATER, WILLIAM LUTLEY, 10 Sloane Court, Chelsea, London, S. W. 3,
 England. (1906) 1917
 STRESEMANN, DR. ERWIN, Zool. Museum, Universität, Invaliden-
 str. 43, Berlin, N. 4, Germany. (1922) 1930
 VAN OORT, DR. EDUARD DANIEL, Mus. Nat. Hist. Leyden, Holland
 (1913) 1919
 WITHERBY, HARRY FORBES, 12 Chesterford Gardens, Hampstead, Lon-
 don, N. W. 3, England. (1921) 1928

CORRESPONDING FELLOWS.

- ABBOTT, DR. WILLIAM LOUIS, North East, Md. 1916
 ALEXANDER, WILFRID BACKHOUSE, Dept. Zool., University Museum,
 Oxford, England. 1921
 ALFARO, DON ANASTASIO, San José, Costa Rica. 1888
 ARRIBALZAGA, ENRIQUE LYNCH, Resistencia, Chaco, Argentina. 1918
 ASHBY, EDWIN, Wittunga, Blackwood, Adelaide, South Australia. . . 1918
 BANNERMAN, DAVID ARMITAGE, 7 Pembroke Gardens, Kensington,
 London, W. 8, England. 1916
 BATE, MISS DOROTHEA MINOLA ALICE, British Museum (Nat. Hist.),
 Cromwell Road, London, S. W. 7, England. 1920
 BATES, GEORGE LATIMER, Thurley's Farm, Blasford Hill, Little Walt-
 ham, Chelmsford, England. 1919
 BAXTER, MISS EVELYN VIDA, The Grove, Kirkton of Largo, Fifeshire,
 Scotland. 1919
 BEAUFORT, DR. LIEVEN FERDINAND DE, Zool. Museum, Amsterdam,
 Holland. 1926
 BERLIOZ, JACQUES, Museum d'Histoire Naturelle, 55 Rue de Buffon,
 Paris, France. 1923
 BERTONI, DR. ARNOLDO DE WINKELREID, Puerto Bertoni, Paraguay. . 1919
 BLAAUW, FRANS ERNST, Gooilust 'sGraveland, Hilversum, Noord
 Holland. 1920
 BRINDLEY, MRS. HAROLD HULME, 25 Madingley Road, Cambridge,
 England. 1920
 BUREAU, DR. LOUIS, Ecole de Médecine, 15 Rue Gresset, Nantes,
 France. 1884
 CARRIKER, MELBOURNE ARMSTRONG, JR., Beach Ave. and Wave St.,
 Beachwood, N. J. (1907) 1912
 CHISHOLM, ALEXANDER HUGH, Daily Telegraph, Sydney, N. S. W., 1922
 COLLINGE, DR. WALTER EDWARD, The Yorkshire Museum, York,
 England. 1918
 CONTRERAS, MARCEL HENRI FELIX DE, 52 Place Georges Brugmann,
 Brussels, Belgium. 1923

DE LAVALLE, JOSÉ ANTONIO, Lima, Peru.....	1925
DOMANIEWSKI, JANUSZ WITOLD, Museum Tatrzańskie, Zakopane, Poland.....	1926
FERRARI-PEREZ, PROF. FERNANDO, Tacubaya, D. F., Mexico.....	1885
FREKE, PERCY EVANS, South Point, Limes Road, Folkstone, England.....	1883
GEE, NATHANIEL GIST, China Medical Board, Peiping, China.....	1919
GHIGI, PROF. ALESSANDRO, R. Università, Bologna, Italy.....	1921
GLADSTONE, CAPT. HUGH STEUART, Capenoch, Thornhill, Dumfriesshire, Scotland.....	1923
GRANT, CAPT. CLAUDE HENRY BAXTER, Kondoa Irangi, Tanganyika Ter., E. Africa.....	1920
GROTE, HERMANN, Treudelenburgstrasse 16, Berlin-Charlottenburg, Germany.....	1923
GYLDENSTOLPE, COUNT NILS, Naturhistoriska Riksmuseum, Vetenskapsakademien, Stockholm, Sweden.....	1918
HACHISUKA, HON. MASAUJI, Japanese Embassy, 37 Portman Sq., London, W. I., England.....	(1927) 1930
HELMS, DR. OTTO, Sanatoriet ved Nakkelbøllefjord, pr Pejruk, Denmark.....	1920
HENNICKE, DR. CARL RICHARD, Gera, Reuss, Germany.....	1907
HENSON, HARRY VERNON, c/o Hong Kong and Shanghai Banking Corp., 9 Grace Church St., London, E. C., England.....	1888
HORTLING, DR. IVAR JOHANNES, Helsingfors-Brando, Finland.....	1926
HOWARD, HENRY ELIOT, Clarelunds, near Stourport, Worcestershire, England.....	1930
HULL, ARTHUR FRANCIS BASSET, Box 704, Sydney, N. S. W.....	1919
INGRAM, CAPT. COLLINGWOOD, The Grange, Benenden, Cranbrook, Kent, England.....	1920
IREDALE, TOM, c/o Australian Museum, Sydney, New South Wales.....	1918
KLOSS, CECIL BODEN, Raffles Museum, Singapore, Straits Settlements.....	1918
LA TOUCHE, JOHN DAVID DIGUES, Kiltymon, Newtown, Mount Kennedy, Co. Wicklow, Ireland.....	1921
LAUBMANN, DR. ALFRED, Zool. Staatssammlung, Neuhauser-str. 51, Munich, Germany.....	1923
LAVAUDEN, LOUIS, Chef du Service Forestier, Tananarivo, Madagascar.....	1923
LODGE, GEORGE EDWARD, Hawkhouse, Park Road, Camberley, Surrey, England.....	1921
LUCANUS, FRIEDRICH CARL HERMANN VON, Invalidenstrasse 43, Berlin N. 4, Germany.....	1923
LYNES, REAR ADMIRAL HUBERT, R. N., 23 Onslow Gardens, South Kensington, London, S. W. 7, England.....	1930
MACGILLIVRAY, DR. WILLIAM DAVID KERR, Broken Hill, N. S. W.....	1922
MADARÁSZ, DR. JULIUS VON, Matyas-ter 14, Budapest, Hungary.....	1884
MARIA, HERMANO APOLINAR, Instituto de la Salle, Bogota, Colombia.....	1921

MATTINGLEY, ARTHUR HERBERT EVELYN, 42 Canterbury Road, Camberwell, Melbourne, Australia.....	1921
MENZBIER, PROF. DR. MICHAEL, Soc. Naturalists Moscow, 1st University, Mokhovaia Str. 3, Apt. 9, Moscow, U. S. S. R.....	1884
MILLAIS, JOHN GUILLE, Compton's Brow, Horsham, Sussex, England..	1911
MITCHELL, SIR PETER CHALMERS, Zoological Society, Regent's Park, London, N. W. 8, England.....	1919
MOFFETT, LACY IRVINE, Kiangyin Ku, China.....	1919
MOMIYAMA, TOKU TARO, 1146 Sasazka, Yoyohata-mati, Tokyo, Japan.....	1925
MORGAN, DR. ALEXANDER MATHESON, S. A. Mus., Adelaide, South Australia.....	1929
NEUMANN, PROF. OSCAR, Wilmersdorferstrasse 74, Berlin-Charlottenburg III, Germany.....	1928
OLIVER, WALTER REGINALD BROOK, Director Dominion Museum, Wellington, N. Z.....	1923
PHILLIPS, MONTAGU AUSTIN, 57 St. George's Sq., London, S. W. 1, England.....	1919
RAMSDEN, DR. CHARLES THEODORE, Box 146, Guantanamo, Cuba (1912)	1918
RIBEIRO, DR. ALIPIO DE MIRANDA, National Museum, Rio Janeiro, Brazil.....	1921
RINTOUL, MISS LEONORA JEFFREY, Lahill, Largo, Fifeshire, Scotland	1919
ROBERTS, AUSTIN, Transvaal Museum, Pretoria, Transvaal, South Africa.....	1920
SCHAANNING, HANS THOMAS LANGE, Stavanger Museum, Stavanger, Norway.....	1923
SCHENK, JAKOB, Secy. Roy. Hungarian Inst. Ornith., Debroi-ut 15, Budapest II, Hungary.....	1926
SETH-SMITH, DAVID, Zoological Gardens, London, N. W. 8, England..	1920
SKOVGAARD, PETER, Skovbo, pres Viborg, Denmark.....	1926
SNOUKAERT VON SCHAUBURG, BARON RENÉ CHARLES E. G. J. VAN, Hotel les Terrasses, Territet, Switzerland.....	1920
STONEHAM, MAJOR HUGH FREDERIC, Kitale, Trans-Nzoia, Kenya Colony, British East Africa.....	1930
SWYNNERTON, CHARLES FRANCIS MASSY, Poste Restante, Dar-es-Salaam, Tanganyika Ter., East Africa.....	1918
TAKA-TSUKASA, PRINCE NOBUSUKA, 1732 Kamimeguro Meguro, Tokyo, Japan.....	1924
THEEL, DR. JOHAN HJALMAR, Appleviken, Rodluvan 7, Stockholm, Sweden.....	1884
THIENEMANN, DR. JOHANNES, Rossitten, Kurische Nehrung, Germany.....	1926
THOMSON, DR. ARTHUR LANDBOROUGH, 9 Addison Gardens, Kensington, London, W. 14, England.....	1922

TICEHURST, DR. CLAUD BUCHANAN, Saxon House, Appledore, Kent, England.....	1922
TICEHURST, NORMAN FREDERIC, 24 Pevensey Road, St. Leonards-on-Sea, Sussex, England.....	1918
TURNER, MISS EMMA LOUISA, 13 Storey's Way, Cambridge, England.....	1920
UCHIDA, DR. SEINOSUKE, No. 1, 7-chome, Aoyama, Kitamachi, Tokyo, Japan.....	1919
VAN SOMEREN, DR. VICTOR GURNET LOGAN, Box 658, Nairobi, Kenya Colony, British East Africa.....	1921
WAIT, WALTER ERNEST, Marshfield, Maitland Crescent, Colombo, Ceylon.....	1925
WHISTLER, HUGH, Calbec House, Battle, Sussex, England.....	1921
WHITE, CAPT. SAMUEL ALBERT, Wetunga, Fulham, South Australia..	1919

MEMBERS.

*Life Member.

ALLEN, FRANCIS HENRY, 2 Park St., Boston, Mass.....	(1888) 1901
ANDERSON, DR. RUDOLPH MARTIN, Nat. Mus., Ottawa, Can.....	(1907) 1914
ATTWATER, HENRY PHILEMON, 2120 Genesee St., Houston, Texas	(1891) 1901
BAILEY, ALFRED MARSHALL, Academy Sciences, Chicago, Ill.....	(1918) 1930
BAILEY, VERNON, 1834 Kalorama Road, Washington, D. C.....	(1887) 1901
BAILY, WILLIAM LLOYD, 220 E. Lancaster Road, Ardmore, Pa.....	(1886) 1901
*BALDWIN, SAMUEL PRENTISS, 11025 East Boulevard, Cleveland, Ohio.....	(1917) 1921
BARTSCH, DR. PAUL, U. S. Nat. Mus., Washington, D. C.....	(1896) 1902
BECK, ROLLO HOWARD, Planada, Merced Co., Calif.....	(1894) 1917
BOND, FRANK, 3127 Newark St., N. W., Washington, D. C.....	(1887) 1901
BOND, JAMES, Acad. Nat. Sci., Philadelphia, Pa.....	(1923) 1929
BOULTON, WOLFRID RUDYERD, Carnegie Mus., Pittsburgh, Pa.....	(1915) 1929
BOWLES, JOHN HOOPER, Berg Apts., Tacoma, Wash.....	(1891) 1910
BRAISLIN, DR. WILLIAM COUGHLIN, 425 Clinton Ave., Brooklyn, N. Y.....	(1894) 1902
BROOKS, WINTHROP SPRAGUE, 234 Berkeley St., Boston, Mass.....	(1907) 1917
BRYANT, DR. HAROLD CHILD, Nat. Park Service, Dept. Interior, Washington, D. C.....	(1913) 1918
BUNKER, CHARLES DEAN, Kansas Univ. Mus., Lawrence, Kans.....	(1916) 1923
BURNS, FRANKLIN LORENZO, Berwyl, Pa.....	(1891) 1901
BUTLER, AMOS WILLIAM, 52 Downey Ave., Irvington, Indianapolis, Ind.....	(1885) 1901
*CHAMBERS, WILLIE LEE, 2068 Escarpa Drive, Eagle Rock, Calif.	(1907) 1913
CHERRIE, GEORGE KRUCK, Newfane, Vt.....	(1891-1912) (1917) 1918
CLARK, DR. HUBERT LYMAN, Mus. Comp. Zool., Cambridge, Mass.	(1886) 1902

- *CONOVER, HENRY BOARDMAN, 6 Scott St., Chicago, Ill. (1920) 1930
- *COOKE, MISS MAY THACHER, 2572 University Place, Washington,
D. C. (1915) 1926
- CRANDALL, LEE SAUNDERS, Zoological Park, New York, N. Y. (1909) 1930
- *DICKEY, DONALD RYDER, Calif. Institute Technology, Pasadena,
Calif. (1907) 1922
- *DIXON, JOSEPH SCATTERGOOD, Mus. Vert. Zool., Univ. Calif., Berke-
ley, Calif. (1917) 1923
- EATON, PROF. ELON HOWARD, 678 Main St., Geneva, N. Y. (1895) 1907
- EIFRIG, PROF. CHARLES WILLIAM GUSTAVE, 1029 Monroe Ave., River
Forest, Ill. (1901) 1929
- EVERMANN, PROF. BARTON WARREN, Calif. Acad. Sci., San Fran-
cisco, Calif. (1883) 1901
- FINLEY, WILLIAM LOVELL, Jennings Lodge, Clackamas Co., Oregon
(1904) 1907
- FORDYCE, GEORGE LINCOLN, 40 Lincoln Ave., Youngstown, Ohio
(1901) 1921
- GABRIELSON, IRA NOEL, 515 P. O. Bldg., Portland Oregon. (1912) 1920
- GAULT, BENJAMIN TRUE, 424 S. Main St., Glen Ellyn, Ill. (1885) 1903
- GOLDMAN, EDWARD ALPHONSO, Biol. Survey, Washington, D. C. (1897) 1902
- HARPER, FRANCIS, 206 Dickinson Ave., Swarthmore, Pa. (1907) 1917
- *HARRIS, HARRY, 5234 Hermosa Ave., Eagle Rock, Calif. (1911) 1919
- HENDERSON, JUNIUS, 1305 Euclid Ave., Boulder, Colo. (1903) 1929
- HERRICK, PROF. FRANCIS HOBART, 2863 Noble Road, Cleveland,
Ohio. (1913) 1919
- HERSEY, FRANK SEYMOUR, Bay Road, Easton, Mass. (1911) 1916
- HOFFMAN, RALPH, Director Mus. Nat. Hist., Santa Barbara, Calif.
(1893) 1901
- HOLT, ERNEST GOLSAN, c/o Miss OLIVIA HOLT, 312 Bell Bldg., Mont-
gomery, Ala. (1911) 1925
- *HOWELL, ALFRED BRAZIER, Dept. Anatomy, Johns Hopkins Medical
School, Baltimore, Md. (1909) 1916
- HUBER, WHARTON, 225 St. Marks Sq., Philadelphia, Pa. (1915) 1922
- JACOBS, JOSEPH WARREN, 404 S. Washington St., Waynesburg, Pa.
(1889) 1904
- JEFFRIES, WILLIAM AUGUSTUS, 50 Congress St., Boston, Mass. (1883) 1901
- JEWETT, STANLEY GORDON, 515 P. O. Bldg., Portland, Oregon. (1906) 1926
- JOB, HERBERT KEIGHTLEY, Comm. Game and Inland Fisheries,
Library Bldg., Richmond, Va. (1896) 1901
- *KENNARD, FREDERIC HEDGE, Dudley Road, Newton Centre, Mass.
(1892) 1912
- *LAW, JOHN EUGENE, Gen. Delivery, Altadena, Calif. (1907) 1916
- LEWIS, DR. HARRISON FLINT, Can. Nat. Parks, Ottawa, Can. (1912) 1930
- LIGON, JAMES STOKLEY, Carlsbad, N. Mex. (1912) 1927
- *LINCOLN, FREDERICK CHARLES, Biological Survey, Washington,
D. C. (1910) 1921

- LLOYD, HOYES, 582 Mariposa Ave., Rockcliffe Park, Ottawa, Can.
(1916) 1925
- *LYON, WILLIAM ISAAC, 124 Washington St., Waukegan, Ill... (1921) 1925
- MACKAY, GEORGE HENRY, 110 State St., Room 203, Boston, Mass.
(1890) 1901
- MAILLIARD, JOHN WARD, 230 California St., San Francisco, Calif.
(1895) 1901
- MAY, DR. JOHN BICHARD, South Main St., Cohasset, Mass.... (1916) 1930
- MOORE, ROBERT THOMAS, 1420 E. Mountain St., Pasadena, Calif.
(1898) 1914
- MOUSLEY, WILLIAM HENRY, 4073 Tupper St., Westmount, Montreal,
Can..... (1915) 1926
- MUNRO, JAMES ALEXANDER, Okanagan Landing, B. C., Can... (1913) 1926
- *NAUMBURG, MRS. WALTER WEHLE, 121 E. 64th St., New York,
N. Y..... (1916) 1924
- NICHOLS, JOHN TREADWELL, Am. Mus. Nat. Hist., New York, N. Y.
(1901) 1910
- NORTON, ARTHUR HERBERT, Mus. Nat. Hist., 22 Elm St. Portland,
Maine..... (1890) 1902
- PEARSON, DR. THOMAS GILBERT, 1974 Broadway, New York, N. Y.
(1891) 1902
- PENARD, THOMAS EDWARD, 12 Norfolk Road, Arlington, Mass. (1912) 1919
- PENNOCK, CHARLES JOHN, Kennett Square, Pa..... (1888) 1901
- PREBLE, EDWARD ALEXANDER, Biological Survey, Washington, D. C.
(1892) 1901
- RATHBUN, SAMUEL FREDERICK, Apt. 304, 201 17th Ave., N., Seattle,
Wash. (1893) 1902
- *RIVES, DR. WILLIAM CABELL, 1702 Rhode Island Ave., Washington,
D. C..... (1885) 1901
- *ROGERS, CHARLES HENRY, East Guyot Hall, Princeton, N. J.. (1904) 1921
- ROWAN, PROF. WILLIAM, Univ. Alberta, Edmonton, Alta., Can. (1920) 1927
- SAUNDERS, ARETAS ANDREWS, 48 Longview Ave., Fairfield, Conn.
(1907) 1920
- SETON, ERNEST THOMPSON, Greenwich, Conn..... (1883) 1901
- *SHERMAN, MISS ALTHEA ROSINA, National, via McGregor, Iowa
(1907) 1912
- *SHIRAS, HON. GEORGE, 3d, 4530 Kingle St., Wesley Heights, Wash-
ington, D. C..... (1907) 1915
- SIMMONS, GEORGE FINLAY, 2903 Edgehill Road, Cleveland Heights,
Ohio..... (1910) 1923
- SNYDER, LESTER LYNNE, Royal Ont. Mus., Toronto, Ont., Can. (1919) 1929
- SPRUNT, ALEXANDER, JR., 92 South Bay St., Charleston, S. C.. (1923) 1928
- STEPHENS, FRANK, Nat. Hist. Mus., Balboa Park, San Diego, Calif.
(1883) 1901
- STEPHENS, PROF. THOMAS CALDERWOOD, Morningside College, Sioux
City, Iowa..... (1909) 1920

- STODDARD, HERBERT LEE, The Hall, Route 1, Tallahassee, Fla.. (1912) 1924
 STORER, DR. TRACY IRWIN, Div. Zool., Univ. Farm, Davis, Calif.
 (1916) 1922
 STREET, JOHN FLETCHER, 1120 Locust St., Philadelphia, Pa... (1908) 1928
 STRONG, DR. REUBEN MYRON, 5840 Stoney Island Ave., Hyde Park
 Sta., Chicago, Ill. (1889) 1903
 *STUART, GEORGE HAY, 3d, 923 Clinton St., Philadelphia, Pa... (1913) 1928
 SUTTON, GEORGE MIKSCH, Pebble Hearths, Bethany, W. Va... (1919) 1925
 SWENK, MYRON HARMON, 1410 N. 37th St., Lincoln, Nebr.... (1904) 1920
 THAYER, JOHN ELIOT, Lancaster, Mass..... (1898) 1905
 TOWNSEND, DR. CHARLES HASKINS, Aquarium, Battery Park, New
 York, N. Y..... (1883) 1901
 TROTTER, DR. SPENCER, Darlington & Miner Sts., West Chester, Pa.
 (1888) 1901
 *TYLER, DR. WINSOR MARRETT, 112 Pinckney St., Boston, Mass.
 (1912) 1917
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 Calif..... (1923) 1927
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 (1902) 1910
 WHITE, FRANCIS BEACH, St. Paul's School, Concord, N. H.... (1891) 1925
 WILLETT, GEORGE, Los Angeles Museum, Exposition Park, Los
 Angeles, Calif..... (1912) 1913
 *WILLIAMS, ROBERT WHITE, 419 N. Calhoun St., Tallahassee, Fla.
 (1900) 1918
 WOLCOTT, DR. ROBERT HENRY, State University, Lincoln, Nebr.
 (1901) 1903
 *WOOD, DR. CASEY ALBERT, 7 W. Madison St., Chicago, Ill.... (1917) 1921
 WOOD, NORMAN ASA, Mus. Univ. Mich., Ann Arbor, Mich.... (1904) 1912
 WRIGHT, DR. ALBERT HAZEN, Upland Road, Ithaca, N. Y.... (1906) 1919
 WRIGHT, MRS. MABEL OSGOOD, Box 32, Fairfield, Conn..... (1895) 1901
 ZIMMER, JOHN TODD, Am. Mus. Nat. Hist., New York, N. Y... (1908) 1922

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*Life Associate.

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- ABBEY, G. F., Cottonwood, Minn..... 1924
 ABBOTT, CLINTON GILBERT, Nat. Hist. Mus., Balboa Park, San Diego,
 Calif..... 1898
 ABBOTT, MISS HARRIET, P. O. Box 125, Fryeburg, Maine..... 1918
 ABEGG, KLAUSS, 1736 Cedar Road, Homewood, Ill..... 1929
 *ACHILLES, MRS. GERTRUDE STRONG, Morgan Hill, Calif..... 1925
 ADAMS, BENJAMIN, P. O. Box 42, Wethersfield, Conn..... 1911
 ADAMS, DR. CHARLES EVERETT, 29 W. Broadway, Bangor, Maine... 1922
 ADAMS, IVERS SHEPARD, 98 Washington St., Dorchester, Mass..... 1923

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Boston, Mass..... 1920
- ADAMS, DR. ZABDIEL BOYLSTON, 43 Cottage Farm Road, Brookline,
Mass..... 1908
- AGASSIZ, RODOLPHE LOUIS, 14 Ashburton Pl., Boston, Mass. 1922
- AHRENS, RAYMOND MILTON, 2513 Lincoln Ave., Chicago, Ill. 1927
- AHRENS, DR. THEODOR GEORGE, Waitzstrasse 24, Berlin-Charlotten-
burg III, Germany..... 1920
- **AIKEN, CHARLES EDWARD HOWARD, 1523 N. Tejon St., Colorado
Springs, Colo..... 1926
- AIMAR, MISS AGATHA, 268 Calhoun St., Charleston, S. C. 1928
- ALDRICH, JOHN WARREN, Cleveland Mus. Nat. Hist., 2717 Euclid Ave.,
Cleveland, Ohio..... 1929
- *ALEXANDER, MISS ANNIE MONTAGUE, Box 248, Suisun City, Calif. 1911
- ALEXANDER, EDWARD GORDON, Dept. Biology, Guyot Hall, Prince-
ton, N. J..... 1930
- ALEXANDER, MRS. MABEL DREHER, 1184 French Ave., Lakewood,
Ohio..... 1929
- ALFORD, CHARLES EGERTON, "Hurst," Walberswick, Southwold,
Suffolk, England..... 1928
- ALLARD, HARRY ARDELL, 425 West Wing, Dept. Agr., Washington
D. C..... 1929
- ALLEN, MRS. AMELIA SANBORN, 37 Mosswood Road, Berkeley, Calif. 1919
- ALLEN, ARTHUR FRANCIS, 103 Follis Apts., Sioux City, Iowa..... 1919
- ALLEN, DEVERE, Wilton, Conn..... 1925
- ALLEN, EGBERT CHESLEY, 150 South St., Halifax, Nova Scotia, Can.. 1928
- ALLEN, WALTER FOX, 168 Delevan Ave., Newark, N. J..... 1925
- ALLERT, OSCAR, PAUL, R. D. 1, McGregor, Iowa..... 1923
- ALSOP, MISS ELIZABETH BILLINGS, 229 Euclid Ave., Ridgway, Pa. 1926
- AMACKER, JOHN RALPH, Stanley, Wis..... 1930
- AMADON, DEAN, R. R. 4, Franklinville, N. Y..... 1930
- AMMON, MISS ELSIE, 1265 Parkwood Drive, Cleveland, Ohio..... 1929
- ANDERSON, CHARLES JOHN, 2033 Wilbraham Rd., Springfield, Mass.. 1922
- ANDERSON, EDWIN CONRAD, Box 157, Dell Rapids, S. Dak..... 1919
- ANDERSON, WILLIAM, South Park, Merriam, Kan..... 1925
- ANDREWS, ARTHUR ALLEN, 28 Dungan St., Canandaigua, N. Y..... 1924
- ANGELL, WALTER ALLEN, 33 Westminster St., Providence, R. I.... 1901
- ANTHONY, HAROLD ELMER, Am. Mus. Nat. Hist., New York, N. Y... 1911
- APPLETON, HENRY LEWIS, Twin Spring Farm, Penllyn, Pa..... 1929
- ARANGO, ANIBAL JOSEPH, 203 W. Osborne Ave., Tampa, Fla..... 1930
- ARCHBOLD, RICHARD, Am. Mus. Nat. Hist., New York, N. Y..... 1930
- ARCHIBALD, MRS. W. P., ROUTE 1, Box 209 A, Santa Cruz, Calif.... 1930
- ARNOLD, BENJAMIN WENTWORTH, 465 State St., Albany, N. Y..... 1924
- *ARNOLD, EDWARD WILLIAM CAMERON, Box 727, Babylon, L. I., N. Y. 1929
- ARNOLD, J. H., 4002 Massachusetts St., Long Beach, Calif..... 1929

ARTHUR, EDMUND WATTS, 7438 Perrysville Ave., Ben Avon, Pittsburgh, Pa.....	1919
ARTHUR, STANLEY CLISBY, 1309 State St., New Orleans, La.....	1916
ASPINWALL, MRS. CLARENCE AKIN, 2340 Kalorama Rd., Washington D. C.....	1916
ASTLEY, ARTHUR, Freshfield, Ambleside, England.....	1928
ATHERTON, EDWARD HERBERT, 22 Aldworth St., Jamaica Plain, 30, Mass.....	1917
ATKINSON, DR. DANIEL ARMSTRONG, 132 Oakwood Ave., West View, Pittsburgh, Pa.....	1924
ATWELL, GEORGE CARRINGTON, Strafford, N. H.....	1920
AUSTIN, DR. OLIVER LUTHER, Tuckahoe, Westchester Co., N. Y. . .	1930
AUSTIN, OLIVER LUTHER, JR., North Eastham, Cape Cod, Mass.....	1925
AVERBACH, BERTRAM FREDERICK, 2173 Cummington Rd., Cleveland, Ohio.....	1924
AVERILL, CHARLES KETCHUM, 1075 Iranistan Ave., Bridgeport, Conn..	1919
BABCOCK, DR. HAROLD LESTER, 16 Woodleigh Road, Dedham, Mass..	1926
BACON, FRANCIS LLEWELLYN, 22 Waterman Ave., Chestnut Hill, Philadelphia, Pa.....	1917
BADÉ, DR. WILLIAM FREDERIC, 2616 College Ave., Berkeley, Calif. . .	1916
BADGER, MARTIN CRAMTON, Santa Paula, Calif.....	1929
BAERG, PROF. WILLIAM J., Exp. Sta., Univ. Ark., Fayetteville, Ark. .	1924
*BAGG, AARON CLARK, 70 Fairfield Ave., Holyoke, Mass.....	1916
BAILEY, GEORGE JARBEAU, Walden, Colo.....	1930
BAILEY, PROF. GUY ANDREW, Geneseo, N. Y.....	1910
BAILEY, MRS. HENRY MOORE, 2109 Nebraska St., Sioux City, Iowa. .	1922
BAILEY, JOHN WENDELL, Univ. Richmond, Richmond, Va.....	1925
BAILLIE, JAMES LITTLE, Royal Ontario Mus., Toronto, Ont., Can. . .	1923
BAIRD, DAVID GALBRAITH, 228 S. Third St., Philadelphia, Pa.....	1924
BAIRD, MISS KATHARINE BRUCE, 815 Webster St., Washington, D. C..	1918
BAIRD, ROBERT LOGAN, 279 Oak St., Oberlin, Ohio.....	1921
BAKER, JOHN HOPKINSON, 1165 Fifth Ave., New York, N. Y.....	1911
BAKER, WILLIAM CALVIN, 223 West Pershing St., Salem, Ohio.....	1930
BALDWIN, MRS. HARRY LEVERETT, 7136 Ridgeland Ave., Chicago, Ill..	1924
BALES, DR. BLENN RIFE, 149 W. Main St., Circleville, Ohio.....	1907
BALL, EDWARD MATTHEWS, Box 144, East Falls Church, Va.....	1918
BALL, DR. JOSEPH PRICE, 5001 Frankford Ave., Philadelphia, Pa.....	1911
BALL, WILLIAM HOWARD, 1861 Ingleside Terrace, N. W., Washington, D. C.....	1923
BALM, HARRY, Redwood P. O., Muskoka, Ont., Can.....	1928
BARBER, PROF. BERTRAM ALPHA, 350 West St. North, Hillsdale, Mich.	1920
BARCLAY, ALEXANDER CAMPBELL, JR., N. 2216 Lincoln St., Spokane, Wash.....	1929
BARLOW, HENRY HOYT, c/o H. H. Dennis, Ill. Athletic Club, Chicago, Ill.....	1921
BARNARD, THEODORE WINTHROP, 46 Norfolk Road, Arlington, Mass..	1921

BARNES, CLAUDE TEANCUM, 359 Tenth Ave., Salt Lake City, Utah . . .	1908
**BARNES, RICHARD MAGOON, Lacon, Ill.	1889
BAROODY, MRS. ELIYA TANNUS, 3130 Wenonah Ave., Berwyn, Ill. . . .	1927
BARRETT, CHARLES HORATIO MATCHETT, 1339 Valley Place, S. E., Washington, D. C.	1912
BARRETT, HAROLD LAWRENCE, 30 State St., Boston, Mass.	1909
BARRY, MISS ANNA KINGMAN, 5 Bowdoin Ave., Dorchester 21, Mass. .	1907
BARRY, JOHN FREDERICK, JR., 246 Walton St., Syracuse, N. Y.	1926
BARTRAM, EDWIN BUNTING, Bushkill, Pike Co., Pa.	1913
BARTRAM, JOHN, Rt. 2, West Chester, Pa.	1924
BASCOM, HUBERT PARKINSON, Stockton, St. Michael, Barbados, B. W. I.	1922
BASNER, HARRY, 440 Broadway, New York, N. Y.	1927
BASSETT, FRANK NEWTON, 91 Merced Ave., San Francisco, Calif. . .	1919
BASSETT, MRS. VICTOR HUGO, 1010 E. Park Ave., Savannah, Ga. . . .	1927
BASSLER, DR. HARVEY, Myerstown, Pa.	1930
BATCHELDER, MRS. CHARLES FOSTER, Peterborough, N. H.	1930
BATES, MISS EMELINE CLARK, 17 Scott St., Chicago, Ill.	1920
BATES, TALCOTT, 12 East 64th St., New York, N. Y.	1930
BATTEN, GEORGE, 15 University Place, Princeton, N. J.	1914
BAUMGARTNER, FREDERICK MILTON, 430 Buckingham Drive, Indian- apolis, Ind.	1930
BAYNARD, OSCAR EDWARD, P. O. Box 104, Plant City, Fla.	1924
BEACH, DR. CHARLES COFFING, 54 Woodland St., Hartford, Conn. . .	1922
BEADEL, HENRY LUDLOW, Route A, Tallahassee, Fla.	1926
BEAL, CLARENCE MARVIN, 184 Stowe St., Jamestown, N. Y.	1929
BEALE, MRS. ALFRED TENNYSON, 5833 85th St., Elmhurst, L. I., N. Y.	1928
BEAN, ROBERT, Chicago Zool. Park, Brookfield, Ill.	1930
BEARDSLEE, CLARK SMITH, 132 McKinley Ave., Kenmore, N. Y. . .	1930
BEATTY, GEORGE HUDDALL, JR., 256 Linden Ave., Merion Station, Pa.	1925
BECK, HERBERT HUEBENER, Lititz, Lancaster County, Pa.	1921
BECK, JOSEPH NICHOLAS, Remsen, Iowa	1923
*BEDELL, MRS. LAUREL MAY, 1620 Mass. Ave., N. W., Washington, D. C.	1929
BEE, ROBERT GEORGE, 81 E. Center St., Provo, Utah	1926
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BENCHLEY, MRS. BELLE JENNINGS, Zool. Garden, Balboa Park, San Diego, Calif.	1930
BENNERS, GEORGE BARTLESON, 278 S. 23rd St., Philadelphia, Pa. . .	1927
BENNETT, HENRY STANLEY, 111 Forest St., Oberlin, Ohio	1929
BENNETT, THOMAS, 249 Cemetary Road, Lidget Green, Bradford, Yorkshire, England	1930
BENNETT, WALTER WALDO, 309 Warnock Bldg., Sioux City, Iowa . .	1924
BENSON, FRANK WESTON, 14 Chestnut St., Salem, Mass.	1920
BENSON, MRS. GEORGE FREDERICK, Owen, Wis.	1926

BENSON, SETH BERTRAM, Mus. Vert. Zool., Univ. California, Berkeley, Calif.....	1928
BERRIE, MRS. KENNETH GORDON, c/o Board of Trade, Box 8, Brunswick, Ga.....	1930
BERRY, ELVERTON CLOUTMAN, Box 234, Conway, N. H.....	1924
BEZEMER, KAREL WILLEM LEONARD, Buitenzorg, Java, Dutch East Indies.....	1928
BICKNELL, MRS. FREDERICK THOMPSON, 319 S. Normandie Ave., Los Angeles, Calif.....	1913
BIDDLE, MISS EMILY WILLIAMS, 1828 Delancey Place, Philadelphia, Pa.....	1898
BIDDLE, MRS. JOHN F., 3304 Perrysville Ave., N. S., Pittsburgh, Pa.....	1929
BIERMAN, WILLEM HENDRICK, Blesboklaan 6, Hilversum, Holland.....	1928
*BIGELOW, MRS. ARCHIBALD PIERCE, Ogden, Utah.....	1919
BIGELOW, HOMER LANE, 37 Old Orchard Road, Chestnut Hill, Mass.....	1902
BIGELOW, DR. LYMAN FISHER, 80 Winter St., Norwood, Mass.....	1914
BIRD, DR. RALPH DURHAM, Univ. Oklahoma, Norman, Okla.....	1927
BISCHOFF, MRS. MARGUERITE JOHNSTONE, Box 236, Summerville, S. C.....	1929
BISHOP, RICHARD EVETT, Springbank Lane, Mt. Airy P. O., Philadelphia, Pa.....	1929
BISHOP, SHERMAN CHAUNCEY, Dept. Biology, Univ. Rochester, Rochester, N. Y.....	1919
BLACK, JOHN DAVID, Winslow, Ark.....	1926
BLACKWELDER, ELIOT, Box N, Stanford University, Calif.....	1895
BLAIN, DR. ALEXANDER WILLIS, 494 Lodge Ave., Detroit, Mich.....	1929
BLAIR, MISS HELEN MARIE, 254 Melwood St., Oakland, Pittsburgh, Pa.....	1924
BLAKE, MRS. EDWIN TYLER, Arlington Ave. & Rincon Rd., Berkeley, Calif.....	1927
BLAKE, DR. SIDNEY FAY, Bur. Plant Industry, Dept. Agr., Washington, D. C.....	1923
BLANCHARD, FRANK NELSON, Dept. Zool., Univ. Mich., Ann Arbor, Mich.....	1924
BLICKENSERFER, CLARK, 866 Grant St., Denver, Colo.....	1929
BLIJDENSTEIN, LOUIS, Parkstation, Waynesboro, Va.....	1929
BLINCOE, BENEDICT JOSEPH, Rt. 13, Dayton, Ohio.....	1921
BLOOMFIELD, MRS. CHARLES C., 729 W. Main St., Jackson, Mich.....	1901
BOARDMAN, MISS ELIZA DENNIE, 416 Marlborough St., Boston, Mass.....	1906
BODINE, MRS. DONALDSON, 4 Mills Place, Crawfordsville, Ind.....	1916
BODINE, MISS MARGARET LAMB, 19th & Walnut Sts., Philadelphia, Pa.....	1927
BOEHNER, REGINALD STEPHENS, Syracuse Univ., Syracuse, N. Y.....	1919
BOESEL, MARION WATERMAN, Dept. Zool., Miami Univ., Oxford, Ohio.....	1922
BOGARDUS, MISS CHARLOTTE, Round Lake, Saratoga Co., N. Y.....	1909
BOGGS, MISS MARION ALEXANDER, Rt. 3, Waynesville, N. C.....	1924

BOLE, BENJAMIN PATTERSON, JR., Lake Shore Blvd. & Bratenahl Road, Cleveland, Ohio	1930
BOLT, BENJAMIN FRANKLIN, 5300 Brookside Blvd., Kansas City, Mo.	1909
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BOOK, MISS LOIS ADELAIDE, 733 Franklin St., Columbus, Ind.	1928
BOOTH, EDWARD JAMES, 2923 W. Maplewood Ave., Bellingham, Wash.	1928
BORELL, ADREY EDWIN, 2114 Parker St., Berkeley, Calif.	1927
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BOTSFORD, MISS E(MILY) FRANCES, Connecticut College, New London, Conn.	1930
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**BOWDISH, BEECHER SCOVILLE, Demarest, N. J.	1891
BOWDISH, MRS. BEECHER SCOVILLE, Demarest, N. J.	1902
BOWEN, MISS ALICE MABEL, 437 Central St., Springfield, Mass.	1929
BOWEN, WILFRID WEDGWOOD, Academy Nat. Sci., Philadelphia, Pa.	1926
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BRACKEN. MRS. HENRY MARTYN, 999 College Ave., Claremont, Calif.	1897
BRADSHAW, FRED, Director Provincial Mus., Normal School, Regina, Sask., Can.	1921
BRADT, HERBERT SCHUYLER, JR., 212 E. 48th St., New York, N. Y.	1930
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*BRANDRETH, COURTENAY, Ossining, N. Y.	1905
BRANDT, HERBERT WILLIAM, 14507 Shaker Blvd., Shaker Heights, Cleveland, Ohio.	1915
BRANNON, PETER ALEXANDER, Box 358, Montgomery, Ala.	1919
BRECKENRIDGE, WALTER JOHN, Zool. Mus., Univ. Minn., Minneapolis, Minn.	1926
BREDER, CHARLES MARCUS, JR., Aquarium, Battery Park, New York, N. Y.	1919
BRETSCH, CLARENCE, 6201 East 4th Ave., Gary, Ind.	1924
BRIDGHAM, SAMUEL WILLARD, JR., 18 Brown St., Providence, R. I.	1928
BRIGGS, MRS. EDSON WORCESTER, 7760 16th St., N. W., Washington, D. C.	1928
BRIGHT, STANLEY, R. D. 2, Reading, Pa.	1921
BRIMLEY, HERBERT HUTCHINSON, State Museum, Raleigh, N. C.	1904
BRISTOL, MISS FRANCES LOUISA, 169 Columbia Heights, Brooklyn, N. Y.	1921
BRODE, DR. HOWARD STIDHAM, 433 E. Alder St., Walla Walla, Wash.	1923
BRODKORB, WILLIAM PIERCE, 711 Judson Ave., Evanston, Ill.	1925
BROLEY, CHARLES LAVELLE, Mgr. Bank of Montreal, Corydon Ave., Winnipeg, Man., Can.	1926

BRONSON, BARNARD SAWYER, 46 Lenox Ave., Albany, N. Y.....	1920
BROOKS, CHESTER KINGSLEY, Brookwood Farm, Mentor, Ohio.....	1924
BROOKS, DR. EARL, Noblesville, Ind.....	1924
BROOKS, REV. EARLE AMOS, 166 Plymouth Road, Newton Highlands, Mass.....	1892
BROOKS, GORHAM, 60 State St., Boston, Mass.....	1919
BROOKS, MAURICE, French Creek, West Va.....	1930
BROOMHALL, WILLARD HARLAN, Stockport, Ohio.....	1929
BROUN, MAURICE, Box 311, Lenox, Mass.....	1922
BROWN, MISS BERTHA LOUISE, 53 Court St., Bangor, Maine.....	1918
BROWN, CLARENCE EMERSON, Zool. Society, 34th St. and Girard Ave., Philadelphia, Pa.....	1929
BROWN, EDMUND PIERCE, 48 Union St., Belfast, Maine.....	1920
**BROWN, EDWARD JOHNSON, Box 700, Eustis, Fla.....	1891
BROWN, ELMER EVANS, 1602 Walker Ave., Greensboro, N. C.....	1930
BROWN, FRANK REID, 1602 Walker Ave., Greensboro, N. C.....	1930
BROWN, HARRY APPLETON, 40 Talbot St., Lowell, Mass.....	1912
BROWN, HOWARD FLETCHER, 405 Avondale Ave., Houston, Texas....	1928
BROWN, HUBERT HARTFIELD, 42 Pacific Ave., Toronto 9, Ont., Can... 1924	
BROWN, WILLIAM JAMES, 250 Oliver Ave., Westmount, Que., Can....	1908
BROWN, WILLIAM LEWIS, U. S. Nat. Mus., Washington, D. C.....	1927
BROWN, WILMOT WOOD, c/o H. E. Fletcher, Hereford, Ariz.....	1929
BROWNING, WILLIAM HALL, 260 4th Ave., New York, N. Y.....	1911
BRUCE, JAMES A., 557 Spring St., Wooster, Ohio.....	1930
BRUEN, FRANK, Apt. A4, The Upsilon, Bristol, Conn.....	1908
BRUESTLE, BERTRAM GEORGE, 404 Elm St., Frederick, Md.....	1929
BRUMBAUGH, CHALMERS SHERFEY, 2606 Elsinor Ave., Baltimore, Md..	1916
BRUNER, MISS ELEANOR CONSTANCE KATHLEEN, c/o Wm. Hyndman, Marcus, Iowa.....	1930
BRUNER, STEPHEN COLE, Estacion Agronomica, Santiago de las Vegas, Habana, Cuba.....	1926
*BRUN, CHARLES ANAULTUS, 1510 Central Ave., Hot Springs, Ark... 1919	
BRYAN, MRS. ALFRED HENRY, P. O. Box 414, Balboa Heights, Canal Zone.....	1927
BRYANT, LINCOLN, JR., 149 Randolph Ave., Milton, Mass.....	1927
BRYANT, WILLIAM LETCHWORTH, Park Museum, Providence, R. I....	1926
BRYENS, OSCAR MCKINLEY, McMillan, Luce Co., Mich.....	1924
BUCKLE, JOHN WILLIAM, c/o Thomas Robertson & Co., P. O. Box 2460, Montreal, Can.....	1928
BULL, CHARLES LIVINGSTON, Oradell, N. J.....	1920
BULLOCK, DILLMAN SAMUEL, Casilla 71, Angol, Chile.....	1920
BUNDICK, MISS HARRIET ELLEN, 1465 Columbia Road, N. W., Wash- ington, D. C.....	1924
BUNTING, HENRY, 2020 Chadbourne Ave., Madison, Wis.....	1930
BURBANK, MRS. GEORGE EVERETT, Sandwich, Mass.....	1922

BURGESS, MRS. CALVIN LAFAYETTE, 1900 Memorial Ave., Lynchburg, Va.....	1930
BURGESS, DR. HENRY CLINTON, Brigham Hall, Canandaigua, N. Y.....	1920
BURGESS, JOHN KINGSBURY, West St., Dedham, Mass.....	1898
BURGESS, THORNTON WALDO, 61 Washington Road, Springfield, Mass.....	1919
BURLEIGH, THOMAS DEARBORN, 612 City Hall, Asheville, N. C.....	1913
BURNELL, MISS ELIZABETH FRAYER, 1029 N. Stanley Ave., Los Angeles, Calif.....	1923
BURNETT, WILLIAM LEWIS, Agric. College, Fort Collins, Colo.....	1895
BURNHAM, STEWART HENRY, Dept. Botany, Cornell Univ., Ithaca, N. Y.....	1919
BURT, WILLIAM HENRY, Dept. Vert. Zool., Calif. Inst. Technology, Pasadena, Calif.....	1925
BURTCH, VERDI, Branchport, N. Y.....	1903
BURTON, EDWARD MILBY, 18 Atlantic St., Charleston, S. C.....	1929
BUSHBY, FRED WHEELER, 17 Washington St., Peabody, Mass.....	1922
BUTCHER, HOWARD, JR., Stanfair & Wistar Roads, Ardmore, Pa.....	1921
BUTLER, ARTHUR LENNOX, St. Leonard's Park, Horsham, Sussex, England.....	1928
BUTTS, WILBUR KINGSLEY, 711 W. Forest Ave., Decatur, Ill.....	1927
BYRD, WALLACE, 693 West Bethune St., Detroit, Mich.....	1925
CADWALADER, CHARLES MEIGS BIDDLE, Fort Washington, Pa.....	1924
CAHN, DR. ALVIN ROBERT, 164 N. LaSalle St., Chicago, Ill.....	1917
CAIRNS, DR. ALEXANDER, 746 Ridge St., Newark, N. J.....	1928
CAIRNS, JOHN MACKAY, 2403 N. Washington Ave., Scranton, Pa.....	1926
CALDER, JAMES ALEXANDER, Rt. 1, Buena Park, Orange Co., Calif.....	1926
CALHOUN, MISS EMMA MAY, 39 Auburn St., Brookline, Mass.....	1921
CALLAWAY, MISS MARTHA BRYANT, 34 East 56th Terrace, Kansas City, Mo.....	1929
CALLENDER, JAMES PHILLIPS, 32 Broadway, New York, N. Y.....	1903
CALVERT, EARL WELLINGTON, Cavourville, Durham Co., Ont., Can.....	1919
CAMERON, LINDSAY DUNCAN, Hilly St., Mortlake, N. S. W., Australia.....	1929
CAMP, CARA LOUIS, 635 N. Irving Ave., Scranton, Pa.....	1926
CAMPBELL, DR. JAMES ARCHIBALD, 13 Elm St., Toronto, Ont., Can.....	1927
CAMPBELL, LOUIS WALTER, 304 Fearing Blvd., Toledo, Ohio.....	1929
CANBY, MISS CAROLINE PRESCOTT, San Fernando, Calif.....	1930
CANNON, A. B., Laccocchee, Pasco Co., Fla.....	1930
CANTWELL, GEORGE GORDON, Mus. Hist., Art. & Sci., Exposition Park, Los Angeles, Calif.....	1929
CAPEN, MISS ETHEL ADELE, 15 East 69th St., New York, N. Y.....	1924
CAREY, HENRY REGINALD, 3115 Queen Lane, Germantown, Philadelphia, Pa.....	1925
CARLISLE, GEORGE LISTER, JR., 550 Park Ave., New York, N. Y.....	1920
CARPENTER, REV. CHARLES KNAPP, 10920 S. Boyne Ave., Chicago, Ill.....	1894
CARRIGER, HENRY WARD, 5185 Trask St., Oakland, Calif.....	1913

*CARROLL, JAMES JUDSON, P. O. Box 356, Houston, Texas	1926
CARTER, JOHN DARLINGTON, Lansdowne, Pa.....	1907
CARTER, LOWELL EDWIN, R. D. 2, Russiaville, Ind.....	1928
CARTER, THOMAS DONALD, Am. Mus. Nat. Hist., New York, N. Y....	1921
CARTH, MRS. JEAN ELIZABETH (WYNN URQUHART), Morse Pond Grove, Wellesley, Mass.....	1922
CARTWRIGHT, BERTRAM WILLIAM, 213 Phoenix Block, Winnipeg, Man., Can.....	1924
CARTWRIGHT, WILLIAM JAMES, Williamstown, Mass.....	1920
CASE, MRS. FRANKLIN EVERETT, 1717 Market Ave., N. Canton, Ohio.	1927
CHAMBERLAIN, EDWARD BURNHAM, 182 Ashley Ave., Charleston, S. C.	1923
CHAMBERLAIN, GLEN DAVID, Fort Fairfield, Maine.....	1929
*CHAPIN, MISS ANGIE CLARA, c/o First National Bank & Trust Co., Ann Arbor, Mich.....	1896
CHAPIN, MRS. GILBERT WARREN, 350 Farmington Ave., Hartford, Conn.....	1926
CHAPMAN, CLARENCE EDWARD, Oakland, N. J.....	1924
CHAPMAN, MRS. FRANK MICHLE, 1158 Fifth Ave., New York, N. Y....	1908
CHAPMAN, LAWRENCE BOYLSTON, 67 Chester St., Newton Highlands, Mass.....	1930
CHASE, SIDNEY, P. O. Box 162, Nantucket, Mass.....	1904
CHAWNER, MISS ETHEL F., Tarrystone House, Cookham, Berkshire, England.....	1930
CHEESMAN, WILLIAM HANNOLD, Biological Survey, Washington, D. C.	1920
CHENEY, REV. ROBERT FRANCIS, St. Mark's Rectory, Southborough, Mass.....	1922
CHILDS, EDWARD CHILDERFOLK, Norfolk, Litchfield Co., Conn.....	1930
CHRISTOFFERSON, DR. KARL, Blaney, Schoolcraft Co., Mich.....	1921
*CHRISTY, BAYARD HENDERSON, 403 Frederick Ave., Sewickley, Pa....	1922
CHRISTY, PROF. OTTO B., Ball State Teachers College, Muncie, Ind....	1929
*CHURCH, MISS CYNTHIA, The Point, Great Neck, L. I., N. Y.....	1926
CLABAUGH, ERNEST DWIGHT, 44 Lenox Road, Berkeley, Calif.....	1924
CLARK, AUSTIN HOBART, 1818 Wyoming Ave., Washington, D. C.....	1919
CLARK, MISS EDITH MAY, 350 Main St., Glastonbury, Conn.....	1929
CLARK, GEORGE ROBERTS, Cynwyd, Pa.....	1926
CLARK, MISS JESSIE LEE, Academy Sciences, Chicago, Ill.	1927
CLARKE, CHARLES EVERETT, 51 Summit Road, Medford, Mass.....	1907
CLATTENBURG, ALBERT EDWIN, JR., Vice Consul, Amer. Consulate General, Athens, Greece.....	1929
CLAUSEN, ROBERT THEODORE, 139 Brook Ave., Passaic, N. J.....	1928
*CLEAVES, HOWARD HENDERSON, St. George Gardens C7, Unit 4, Staten Id., N. Y.....	1907
CLEEVE, WILLIAM KINGDON, School of Arts, Bolsover St., Rockhamp- ton, Queensland, Australia	1929
CLINGMAN, GEORGE FRANKLIN, 7210 Euclid Ave., Chicago, Ill.....	1924
CLOW, MISS MARION, P. O. Box 163, Lake Forest, Ill.....	1929

COBB, DR. STANLEY, 334 Adams St., Milton, Mass.....	1909
COE, JOHN EDWIN, 4015 N. Ashland Ave., Chicago, Ill.....	1929
COFFEL, HAL HERBERT, Pennville, Jay Co., Ind.....	1927
COFFEY, BEN BARRY, JR., 1434 Bank of Commerce Bldg., Memphis, Tenn.....	1929
COFFIN, MRS. FRANCIS HOPKINSON, 1528 Jefferson Ave., Scranton, Pa.....	1921
COFFIN, MRS. PERCIVAL BROOKS, 5708 Kenwood Ave., Chicago, Ill....	1905
COGGINS, HERBERT LEONARD, 2929 Piedmont Ave., Berkeley, Calif....	1913
COHN, MARC, 29 Hope St., Bendigo, Victoria, Australia.....	1929
COKER, COIT McLEAN, Box 950, Chapel Hill, N. C.....	1930
**COLBURN, ALBERT ERNEST, 716 S. Flower St., Los Angeles, Calif....	1891
COLE, DR. LEON JACOB, Dept. Genetics, Univ. Wis., Madison, Wis....	1908
COLEMAN, ROBERT HEMPHILL, 4 Green St., Charleston, S. C.....	1926
COLLIN, ALBERT, Unioninkatu 45 G 87, Helsinki, Finland.....	1928
*COLLINS, HENRY HILL, III, 7950 Ardmore Ave., Chestnut Hill, Phila- delphia, Pa.....	1923
COMMONS, MRS. FRANK WATKINS, 608 Chamber of Commerce, Min- neapolis, Minn.....	1902
COMPTON, LAWRENCE VERLYN, Mus. Vert. Zool., Berkeley, Calif....	1926
COMPTON, MISS LEILA ANNA, 846 East Bowman St., Wooster, Ohio....	1930
CONGER, ALLEN CLIFTON, Ohio Wesleyan Univ., Delaware, Ohio....	1919
CONGREVE, MAJOR WILLIAM MAITLAND, Hafod, Trefnant, Denbigh- shire, N. Wales, Gt. Britain.....	1928
CONKEY, JOHN HOUGHTON, 40 Water St., Boston, Mass.....	1929
CONKLIN, MRS. IDA MAUD, 94-36 220 St., Queens Village, N. Y.....	1930
COOK, MISS FANNYE ADDINE, Crystal Springs, Miss.....	1924
COOK, GRANT MACDONALD, 39 Tod Lane, Youngstown, Ohio.....	1924
COOK, WILLIAM BOLTON, Comly Ave., Port Chester, N. Y.....	1929
COOKE, GEORGE JOHNES, Lewis Lane, Ambler, Pa.....	1925
COOKMAN, ALFRED, 909 Bradford St., Pomona, Calif.....	1920
COOLIDGE, JOHN TEMPLEMAN, JR., Green St., Readville, Mass.....	1927
COOLIDGE, OLIVER HILL, Broad Brook Road, Bedford Hills, N. Y....	1928
COOLIDGE, PHILIP TRIPP, 31 Central St., Bangor, Maine.....	1919
COPE, FRANCIS REEVE, JR., Dimock, Pa.....	1892
COPELAND, MANTON, 88 Federal St., Brunswick, Maine.....	1900
CORDIER, DR. ALBERT HAWES, 415 Benton Blvd., Kansas City, Mo....	1920
CORSAN, GEORGE HEBDEN, W. K. Kellogg Bird Sanctuary, Rt. 1, Augusta, Mich.....	1930
CORYELL, SHERMAN, 1500 Hood Ave., Chicago, Ill.....	1921
COTTAM, CLARENCE, Biol. Survey, Dept. Agr., Washington, D. C....	1928
COUCH, LEO KING, Capitol Building, Olympia, Wash.....	1922
COUES, DR. WILLIAM PEARCE, 12 Monmouth Court, Brookline, Mass.	1920
COURSEN, BLAIR, 761 E. 69th Place, Chicago, Ill.....	1928
COURT, EDWARD JOSEPH, 1723 Newton St., N. W., Washington, D. C..	1927
COVELL, DR. HENRY HALL, 1600 East Ave., Rochester, N. Y.....	1918

COVERDALE, WILLIAM HUGH, 1020 Fifth Ave., New York, N. Y.....	1928
COX, ARTHUR MALCOLM, 1135 Spruce St., Winnetka, Ill.....	1927
COX, RODMAN DAYTION, 785 South Ave., Rochester, N. Y.....	1919
CRABBE, MRS. CHARLES, 1153 Oak St., Far Rockaway, N. Y.....	1921
CRAIG, GLENN CLIFFTON, 2222 Cole St., Florence, Ala.....	1923
CRAIG, THOMAS MOORE, 217 Queens Road, Charlotte, N. C.....	1928
CRAIG, WALLACE, P. O. Box 554, Brookline, Mass.....	1912
CRAIGMILE, MISS ESTHER ANN, 625 Ashland Ave., River Forest, Ill.....	1927
CRAM, DR. ELOISE BLAINE, Zool. Div., B.A.I., Dept. Agr., Wash- ington, D. C.....	1929
CRANDALL, BOWEN SINCLAIR, 213 Raymond St., Chevy Chase, Md.....	1927
CRANE, MISS CLARA LOOMIS, Dalton, Mass.....	1904
*CRANE, CORNELIUS, Ipswich, Mass.....	1930
CRANE, LESLIE, 161 Holly St., Rutland, Vt.....	1922
CRIDDLE, NORMAN, Treesbank, Man., Can.....	1918
CROCKER, REV. WILLIAM TUFTS, 263 Lexington Ave., New York, N. Y.....	1920
CROFT, GORDON YAN, 2124 Eye St., N. W., Apt. 710 Washington, D. C.....	1930
CROSS, ALBERT ASHLEY, Huntington, Mass.....	1918
CROSSLEY, FRANK, Camrose, Alberta, Can.....	1930
CROUCH, JAMES ENSIGN, 211 Fall Creek Drive, Ithaca, N. Y.....	1928
CROWELL, MISS JOANN OLIVIA, Dennis, Mass.....	1918
CROWELL, MRS. PRINCE SEARS, 4 Maple St., Franklin, Mass.....	1930
CROWELL, MISS SARAH BELLE, Dennis, Mass.....	1924
CROWL, GEORGE HENRY, 516 N. Bever St., Wooster, Ohio.....	1927
CUMMINGS, MISS EMMA GERTRUDE, 16 Kennard Road, Brookline, Mass.....	1903
CUNNINGHAM, JOSIAS, JR., Fernhill, Belfast, Northern Ireland.....	1928
CURRIER, EDMONDE SAMUEL, 416 E. Chicago St., St. John's Sta., Portland, Oregon.....	1894
CURRY, DR. HASKELL BROOKS, 805 West Beaver Ave., State College, Pa.....	1930
CURTIS, CHARLES PELHAM, 71 Ames Bldg., Boston, Mass.....	1915
CUTLER, MRS. FREDERICK MORSE, 103 Butterfield Terrace, Amherst, Mass.....	1923
CUTLER, DR. IRA EUGENE, 2122 S. Clayton St., Denver, Colo.....	1926
CUTTER, MISS LUCIA BELLE, Jaffrey, N. H.....	1920
CUYLER, WILLIAM KENNETH, 1216 W. 22nd St., Austin, Texas.....	1923
DALEY, MRS. EDWIN WOOD, Oliverea, Ulster Co., N. Y.....	1925
DALEY, MISS MARY WOOD, Darling P. O., Delaware Co., Pa.....	1920
DALLAS, GEORGE MIFFLIN, 502 Bethlehem Pike, Chestnut Hill, Phila- delphia, Pa.....	1929
DANE, MRS. ERNEST BLANEY, Chestnut Hill, Mass.....	1912
DANFORTH, STUART TAYLOR, College Agriculture, Mayaguez, P. R.....	1916
DANIELSON, KARL AUGUSTUS, Litchfield, Minn.....	1928
DARCUS, SOLOMON JOHN, Box 660, Penticton, B. C., Can.....	1928

DARLINGTON, PHILIP JACKSON, JR., 41 Walker St., Cambridge, Mass.	1923
DARROW, ROBERT WESLEY, 214 Thurston Ave., Ithaca, N. Y.	1928
DAVENPORT, MRS. ELIZABETH BRAXTON, 46 Western Ave., Brattleboro, Vt.	1898
DAVEY, KENNETH FORSTER, 631 Westminster Ave., Winnipeg, Man. Can.	1930
DAVIDSON, DR. ANDREW MCCONNELL, 856 Palmerston Ave., Winnipeg, Man., Can.	1922
DAVIDSON, MRS. GAYLORD, 4735 Dupont Ave., S., Minneapolis, Minn.	1912
DAVIDSON, MRS. MARY ELLA, Calif. Acad. Sci., Golden Gate Park, San Francisco, Calif.	1920
DAVIDSON, WILLIAM MARK, R. F. D. 1, Silver Spring, Md.	1927
DAVIS, MISS BERTHA EUNICE, 69 Cypress St., Brookline 46, Mass.	1920
DAVIS, CHARLES EVAN, Ellendale, N. Dak.	1930
DAVIS, DORLAND JONES, 721 Elmwood Ave., Wilmette, Ill.	1928
DAVIS, MISS EDDIE LEE, 1317 North Main St., Anderson, S. C.	1928
DAVIS, ELI, R. R. 7, London, Ont., Can.	1930
DAVIS, HENRY WASSON, Seaside Hotel, Ventnor, Atlantic City, N. J.	1922
DAVIS, JOHN M., 227 Clark St., Eureka, Calif.	1920
DAVIS, MALCOLM, 900 11th St., S. E., Washington, D. C.	1930
DAVIS, REUBEN NELSON, Everhart Museum, Scranton, Pa.	1920
DAY, CHESTER SESSIONS, 16 Browne St., Brookline 47, Mass.	1897
DEAN, ROBERT HENRY, 720 Quintard Ave., Anniston, Ala.	1913
DEAR, MAJOR LIONEL SEXTUS, P. O. Box 89, Port Arthur, Ont., Can.	1928
DEARBORN, SAMUEL STEPHEN, 43 Linnaean St., Cambridge, Mass.	1919
DEBES, VICTOR ALBERT, 1209 Folsom Ave., Moores, Pa.	1929
DEGARIS, DR. CHARLES FRANCIS, Johns Hopkins Univ., Baltimore, Md.	1923
DEIGNAN, HERBERT GIRTON, The Prince Royal's College, Chiengmai, Siam.	1925
DELANG, THEODORE GEORGE, 1501 Forest Ave., Wilmette, Ill.	1929
DELOACH, ROBERT JOHN HENDERSON, 5541 Dorchester St., Chicago, Ill.	1910
DELURY, DR. RALPH EMERSON, Dominion Observatory, Ottawa, Can.	1920
DEMERITT, WILLIAM WELLESLEY, U. S. L. H. Service, Key West, Fla.	1930
DEMILLE, JOHN BLAKENEY, 982 Cote des Neiges Rd., Montreal, Can.	1922
DENLEY, CHARLES FREDERICK, Rockville, Md.	1927
DENMEAD, TALBOTT, U. S. Bur. Fisheries, Washington, D. C.	1923
DENNY, MISS MARTHA, 111 High St., Brookline, Mass.	1924
DENSMORE, MISS MABEL, 910 4th St., Red Wing, Minn.	1910
DEPRE, CON, Holland, Mich.	1928
DERBY, DR. RICHARD, Oyster Bay, L. I., N. Y.	1898
DESCHAUENSEE, RODOLPHE MEYER, 1213 Spruce St., Philadelphia, Pa.	1925
DESMOND, THOMAS CHARLES, Newburgh, N. Y.	1929
DE TUYLL, BARON E., Heemskerk, Holland.	1930

DEWELL, HENRY DIEVENDORF, 55 New Montgomery St., San Francisco, Calif.....	1930
DICKENS, MISS ELIZABETH, Block Island, R. I.....	1921
DICKINSON, WILLIAM STIRLING, 314 Pyne Hall, Princeton, N. J.....	1928
DILLE, FREDERICK MONROE, Rapid City, S. D.....	1892
DINGLE, EDWARD VON SIEBOLD, Huger, S. C.....	1920
DINGMAN, RUSSELL GORDON, Toronto, R. R. 2, York Mills, Ont., Can.....	1926
DISE, MRS. MARY DAMERON, Box 51, Glen Rock, Pa.....	1928
DIXON, ALEXANDER JAMES DALLAS, II, c/o U. G. I. Co., Broad and Arch Sts., Philadelphia, Pa.....	1928
DIXON, EDWIN, Box 57, Unionville, Ont. Can.....	1930
DOAK, CHARLES BOONE, 233 Lockhart Hall, Princeton, N. J.....	1930
DOAK, WILLIAM CONWAY, 134 W. Coulter St., Germantown, Philadelphia, Pa.....	1927
DOBIE, JOHN ROBERT, 3553 45th Ave., South Minneapolis, Minn.....	1930
DONOHU, MURRAY THOMPSON, The Balfour, 2000 16th St., N. W., Washington, D. C.....	1925
DOOLITTLE, EDWARD ARTHUR, Box 44, Painesville, Ohio.....	1921
DORSEY, GEORGE ANDREW, P. O. Box 163, Emory Univ., Ga.....	1926
DOUGLASS, DONALD WICKMORE, Bird Section, Univ. Mus., Ann Arbor, Mich.....	1929
DREVER, HORACE, 12 W. Mt. Airy Ave., Philadelphia, Pa.....	1928
DUBOIS, ALEXANDER DAWES, Christmas Lake Road, Route 2, Excelsior, Minn.....	(1905) 1918
DUBOIS, JOHN SELLERS, 221 Foulke Hall, Princeton, N. J.....	1929
DUDLEY, MRS. SARAH HARRIS, Lyman School Branch, Berlin, Mass.....	1924
DUER, HARRY ELDON, 519 Schofield Bldg., Cleveland, Ohio.....	1921
DUFOR, MISS LAURA EDNA, 1524 Boyd Ave., Racine, Wis.....	1924
DUMONT, PHILIP ATKINSON, Sharp Hill Road, Wilton, Conn.....	1927
DUNBAR, MISS LULA, Rt. 1, Elkhorn, Wis.....	1918
DUNCAN, ELLIS, JR., 313 Pyne Hall, Princeton, N. J.....	1928
DUNKER, DR. HANS, Weringeroderstrasse 22, Bremen, Germany....	1928
DUNKLEBERGER, HARRY WARREN, P. O. Box 6, Flourtown, Montgomery Co., Pa.....	1923
DUNN, JOHN WARNER GRIGG, 1033 Lincoln Ave., St. Paul, Minn.....	1923
DUNNING, MRS. WARREN HALSEY, Summerville, S. C.....	1928
DURBOROW, WILLIAM JOSEPH, State Museum, Harrisburg, Pa.....	1928
**DURFEE, OWEN, 727 Madison St., Fall River, Mass.....	1887
DURFEE, MRS. OWEN, 727 Madison St., Fall River, Mass.....	1923
DYKE, ARTHUR CURTIS, 205 Summer St., Bridgewater, Mass.....	1902
DYMOND, JOHN, JR., 1001 Maison Blanche Bldg., New Orleans, La....	1929
EANES, ROBERT HILL, 401 Park Place, Austin, Texas.....	1923
EARL, THOMAS MASON, Route 5, Box 40, Xenia, Ohio.....	1921
EARLE, SAMUEL LOWNDES, 1223 Niazuma Ave., Birmingham, Ala....	1928
EASTWOOD, SIDNEY KINGMAN, Elberon Apts., Bloomfield Sta., Pittsburgh, Pa.....	1925

- EATON, MISS MARY STONE, 8 Monument St., Old Concord, Mass. 1909
 EATON, RICHARD JEFFERSON, 53 State St., Boston, Mass. 1930
 EATON, WARREN FRANCIS, c/o Wellington, Sears & Co., 65 Worth St.,
 New York, N. Y. 1921
 EDMINSTER, FRANK CUSTER, JR., 139 Hudson St., Ithaca, N. Y. 1929
 **EDSON, JOHN MILTON, Marietta Road, Bellingham, Wash. 1886
 EDSON, WILLIAM LLOYD GARRISON, 54 Fairview Ave., Rochester, N. Y. 1916
 EDWARDS, DAVID KEMP, Lansdowne Road, Rockcliffe, Ottawa, Can. . . 1926
 EDWARDS, JAMES LELAND, 27 Stanford Place, Montclair, N. J. 1928
 EDWARDS, MRS. WILLARD HEMENWAY, Fairhope, Ala. 1930
 EGGLESTON, JULIUS WOOSTER, 20 Copperas Hill, Cuttingsville, Vt. . . 1929
 EHEIM, JOSEPH MATHIOUS, 236 Adams St., S., Hutchinson, Minn. . . . 1927
 EHINGER, DR. CLYDE ERNST, 730 Grand Ave., Keokuk, Iowa. 1904
 EKBLAW, WALTER ELMER, Clark University, Worcester, Mass. 1911
 *ELDRIDGE, EVERETT, Chatham, Cape Cod, Mass. 1928
 ELLIOTT, MRS. JANE SHIELDS, 1882 Columbia Road, N. W., Washing-
 ton, D. C. 1921
 ELLIS, CHARLES WILLIAM HENRY, 1939 Biltmore St., N. W., Wash-
 ington, D. C. 1927
 *ELLIS, RALPH, JR., 2420 Ridge Road, Berkeley, Calif. 1924
 ELLISON, REV. CHARLES STUART STANFORD, Hackettstown Rectory,
 Co. Carlow, Ireland. 1930
 ELROD, MRS. WALTER DEWITT, Box 103, Okmulgee, Okla. 1924
 *EMERSON, WILLIAM OTTO, Route 1, Box 39, Hayward, Calif. 1916
 EMERY, FRANK HARDIE, c/o Sandoz Chemical Works Ltd., 119 Ade-
 laide St., W., Toronto 2, Ont., Can. 1928
 EMILIO, SHEPARD GILBERT, 7 Winter St., Salem, Mass. 1922
 EMLIN, ARTHUR COPE, "Awbury," Germantown, Philadelphia, Pa. . . 1921
 EMLIN, JOHN THOMPSON JR., 36 W. School Lane, Germantown, Phila-
 delphia, Pa. 1925
 *EMMET, COL. ROBERT TEMPLE, 48 Washington Ave., Schenectady,
 N. Y. 1926
 ENGLISH, ALMON OWEN, 105 Granby St., Norfolk, Va. 1928
 ERICHSEN, WALTER JEFFERSON, 2311 Barnard St., Savannah, Ga. . . . 1919
 ERSKINE, RICHARD, Wenonah, N. J. 1926
 ESTEN, SIDNEY RAYMOND, 4112 Graceland Ave., Indianapolis, Ind. . . . 1925
 EVANS, DR. EVAN MORTON, 550 Park Ave., New York, N. Y. 1916
 EZRA, ALFRED, Foxwarren Park, Cobham, Surrey, England. 1928
 FAGAN, CHARLES LOUIS, Rt. 2, Box 58, Rahway, N. J. 1922
 FAIRMAN, MISS MARIAN, 4744 Kenwood Ave., Chicago, Ill. 1920
 FARGO, WILLIAM GILBERT, 506 Union St., Jackson, Mich. 1923
 FARLEY, FRANK LEGRANGE, Camrose, Alberta, Can. 1920
 FARLEY, JOHN MOYER, JR., Avondale Rd., Gedney Farm Gardens,
 White Plains, N. Y. 1922
 FAY, SAMUEL PRESCOTT, 2 Otis Place, Boston, Mass. 1907
 *FEARING, GEORGE RICHMOND, 168 Beacon St., Boston, Mass. 1924

FELGER, ALVA HOWARD, North High School, Denver, Colo.....	1898
FELL, MISS EMMA TREGO, Holicong, Bucks Co., Pa.....	1903
FERGUSON, B. W., 715 Hays St., San Antonio, Texas.....	1929
FERGUSON, HENRY LEE, 250 Park Ave., New York, N. Y.....	1920
*FERGUSON, HOMER LENOIR, Newport News Ship Bldg., Newport News, Va.....	1926
FERGUSON, DR. LEE HOLLISTER, 2969 Manchester Road, Shaker Heights, Cleveland, O.....	1929
FERNEYHOUGH, JOHN BOWIE, 4020 Northrop St., Forest Hill, Richmond, Va.....	1930
FERRIER, MISS JUDITH MADELINE, Hemsby Hall, Hemsby, Norfolk, England.....	1928
FESER, MRS. ESTELLA COSSAART, 6632 Yale Ave., Chicago, Ill.....	1925
FESMIRE, ALBERT ROWLAND, c/o C. and M. Alliance, Taichow (Old City), Kansu, China.....	1927
FIELD, MISS CAROLINE LOUISE, 38 Hampton Court, 1461 Mountain St., Montreal, Can.....	1928
FIELD, MRS. EVELYN MARSHALL, 4 East 70th St., New York, N. Y....	1926
FIELD, WILLIAM LUSK WEBSTER, Milton Acad., Milton, Mass.....	1920
FINFROCK, CHARLES MILLARD, 3186 Oak Road, Cleveland Heights, Ohio.....	1925
FINSTER, MISS ETHEL B., Asheville Normal School, Asheville, N. C....	1930
FISHER, MISS ELIZABETH WILSON, Ambler, Pa.....	1896
FISHER, DR. GEORGE CLYDE, Am. Mus. Nat. His., New York, N. Y....	1908
FISHER, PROF. RICHARD THORNTON, Petersham, Mass.....	1924
FLEMING, JAMES MACARTHUR, Drumwalt, The Long Road, Cambridge, England.....	1928
FLETCHER, MISS JANE ADA, Lyelton, Eaglehawk Neck, Tasmania....	1929
FLETCHER, LAWRENCE BROWN, 54 Cotswold Road, Brookline, Mass....	1921
FLETCHER, MRS. MARY ELIZABETH, Proctorsville, Vt.....	1898
FLIERINGA, DR. HENRY JOHAN, Eendrachtsweg 52, Rotterdam, Holland.....	1929
FLORES, ISMAEL, 16 Basora St., Mayaguez, Porto Rico.....	1928
FLOYD, CHARLES BENTON, 454 Wolcott St., Auburndale, Mass.....	1916
FLOYD, JOSEPH LARKE, 1009 Geo. D. Harter Bank Bldg., Canton, Ohio	1921
FOLEY, ALLEN EDWARD, Woodenbulup, via Kulikup, Western Australia	1929
FOLLETT, RICHARD EDWARD, 2134 Dime Bank Bldg., Detroit, Mich....	1926
FOOT, DR. NATHAN CHANDLER, 3560 Interwood Place, Clifton, Cincinnati, Ohio.....	1916
FORBES, RALPH EMERSON, 328 Adams St., Milton, Mass.....	1917
FORD, EDWARD RUSSELL, 7077 Ridge Ave., North Town Sta., Chicago, Ill.....	1920
FORD, FRANCIS, 114 Allyn St., Holyoke, Mass.....	1927
FORD, MISS LOUISE PETIGRU, "The Heights," Aiken, S. C.....	1919
FORTNER, PROF. HARRY CADWALLADER, 102 Bidwell Ter., Rochester, N. Y.....	1929

FOSTER, MISS CAROLINE ROSE, Mendham Road, Morristown, N. J.	1928
*FOSTER, FRANCIS APTHORP, Edgartown, Mass.	1918
*FOSTER, FRANK BRISBIN, P. O. Box 87, Haverford, Pa.	1916
FOSTER, DR. GEORGE SANFORD, 967 Elm St., Manchester, N. H.	1921
*FOSTER, JOHN HAWLEY, P. O. Box H, Haverford, Pa.	1927
FOWLER, FREDERICK HALL, 221 Kingsley Ave., Palo Alto, Calif.	1892
FOWLER, HENRY WEED, Acad. Nat. Sciences, Philadelphia, Pa.	1898
FOX, MISS CAROLINE A., Center Road, Hillsboro, N. H.	1924
FOX, MISS JENNIE ETHEL, Sparkhill, Rockland Co., N. Y.	1925
FRANCIS, LAWRENCE EDWARD, 300 N. 31st St., Corvallis, Oregon	1928
FRANKEL, MRS. HENRY, 301 Tonawanda Drive, Des Moines, Iowa	1925
FRASER, DONALD, JOHNSTOWN, N. Y.	1902
FAZAR, MRS. MARSTON ABBOTT, 84 Abbottsford Road, Brookline, Mass.	1925
FRAZIER, JOSEPH FRANKLIN, 724 Proctor Place, Independence, Mo.	1928
FREER, RUSKIN SKIDMORE, Lynchburg College, Lynchburg, Va.	1928
FREME, S. W. PATRICK, Wepre, Connahs Quay, North Chester, England	1929
FRENCH, MRS. ALFRED JASON, R. F. D. 1, Box 40, Carlton, Ore.	1921
FRENCH, DR. CHARLES EPHRAIM, 62 Holyrood Ave., Lowell, Mass.	1923
FRENCH, DANIEL CHESTER, 36 Gramercy Park, New York, N. Y.	1922
FRENCH, MRS. MENA VESTAL, Box 171, Wayland, Mass.	1923
*FREY, MRS. EDITH KRIEGER, 814 3rd St., Jackson, Mich.	1923
FRICKE, REINHOLD LEO, Carnegie Museum, Pittsburgh, Pa.	1927
FRIEDMAN, RALPH, 32 Garden Place, Brooklyn, N. Y.	1921
FRIEDRICH, GEORGE WALTER, 3029 Belmont Ave., Chicago, Ill.	1925
FROST, ALLEN, 9 Holmes St., Poughkeepsie, N. Y.	1919
FRY, MRS. GLADYS GORDON, 32 Carleton Ave., Port Washington, L. I., N. Y.	1925
*FUGUET, HOWARD, 560 Bullitt Bldg., Philadelphia, Pa.	1919
FUGUET, STEPHEN, Devon, Pa.	1927
FULLER, ARTHUR BENNETT, 2717 Euclid Ave., Cleveland, Ohio	1922
FULLER, MRS. EDWARD ABBOTT, Brick House, Hancock, N. H.	1922
FULLER, HENRY CORBIN, 3704 Huntington St., Washington, D. C.	1916
FULTON, MRS. BEATRICE CUNNINGHAM, 805 S. Main St., Fairfield, Iowa	1930
FUNK, MRS. ABRAHAM BENJAMIN, 649 Harwood Drive, Des Moines, Iowa	1924
GAEDE, MISS ADELE, 9918 Westchester Ave., Cleveland, Ohio	1929
GANDER, FRANK FORREST, P. O. Box 395, East San Diego, Calif.	1926
GANIER, ALBERT FRANKLIN, 2507 Ashwood Ave., Nashville, Tenn.	1917
GARDINER, CHARLES BARNES, 175 W. Main St., Norwalk, Ohio	1903
GARDNER, CAPT. LEON LLOYD, Fitzsimmons Hospital, Denver, Colo.	1924
GARDNER, MRS. WALTER HINCKLEY, Bucksport, Maine	1920
GARNETT, WILLIAM JEREMIAH, Ont. Agr. College, Guelph, Ont., Can.	1928
GARRETT, MRS. HARRY LEE, 2828 Avenue P., Galveston, Texas	1929

GATES, FRANK WARD RISDON, 33 Zion St., Hartford, Conn.....	1928
*GAUNTLETT, FREDERICK JOHN, 16 Primrose St., Chevy Chase, Md....	1925
GEDDES, JOHN MACLAY, 331 High St., Williamsport, Pa.....	1924
GEIST, ROBERT JOHN, 618 Walden Ave., Buffalo, N. Y.....	1930
GEIST, ROBERT MILLER, 811 Euclaire Ave., Bexley, Columbus, Ohio..	1923
GIANINI, CHARLES ALFRED, Poland, N. Y.....	1911
GIFFORD, PAUL COFFIN, 73 Whittier Ave., Olneyville, R. I.....	1921
GIGNOUX, CLAUDE, 73 Tunnel Road, Berkeley, Calif.....	1921
GILBERT, MRS. FREDERICK MILLEMON, Walpole, N. H.....	1919
GILBERT, KENNETH, Box 816, Issaquah, Wash.....	1929
GILES, NORMAN HENRY, JR., 959 Drewry St., N. E., Atlanta, Ga....	1930
GILLESPIE, JOHN ARTHUR, 313 Sharp Ave., Glenolden, Pa.....	1923
GILLESPIE, MRS. JOHN ARTHUR, 313 Sharp Ave., Glenolden, Pa....	1924
GILLESPIE, RICHARD, Bay City Business College, Bay City, Mich....	1930
GILLIAM, ROBERT ALLEN, 1123 Cedar Hill Ave., Sta. A., Dallas, Tex..	1920
GILLIN, JAMES RHODES, Ambler, Pa.....	1921
GILLIS, FRANK, 508 Park St., Anoka, Minn.....	1922
GILMAN, MARSHALL FRENCH, Banning, Calif.....	1907
GILMORE, MRS. ALBERT ESTES, 2215 E. Admiral Bldg., Tulsa, Okla..	1927
GILMORE, ALBERT FIELD, 84 Garfield St., Watertown, Mass.....	1924
GLADDING, MRS. JOHN RUSSELL, Thompson, Conn.....	1912
GLEASON, MRS. CLARK HOUGH, 700 Madison Ave., S. E., Grand Rapids, Mich.....	1917
GLENN, DONALD, Box 9, Franklin, Pa.....	1923
GLOYD, HOWARD KAY, Univ. Michigan, Ann Arbor, Mich.....	1920
GOELTIZ, WALTER ADOLPH, 22 Nunda Boulevard, Rochester, N. Y....	1916
GOELLNER, REV. EUGENE, St. Anselm's College, Manchester, N. H....	1928
GOETZ, CHRISTIAN JOHN, 3503 Middleton Ave., Cincinnati, Ohio....	1929
GOLDMAN, LUTHER JACOB, Box 615, Pocatello, Idaho.....	1929
GOLDSMITH, GLENN WARREN, Box 1611, University Station, Austin, Texas.....	1926
GOOD, PROF. HENRY GEORGE, Polytechnic Inst., Auburn, Ala.....	1925
GOOD, NEWELL EMANUEL, 2000 H St., N. W., Washington, D. C....	1927
GOODRICH, MISS JULIET THEODOSIA, Land o' Lakes, Vilas County, Wis.....	1904
GORDON, HARRY EDGAR, 307 Laburnum Crescent, Rochester, N. Y....	1911
GORDON, JOHN GORDON McHAFFIE, Corsemalzie, Whauphill, Wig- townshire, Scotland.....	1928
GORDON, KENNETH LLEWELLYN, Dept. Zool., State Agric. Coll., Cor- vallis, Oregon.....	1924
GORDON, ROBERT BENSON, 2218 Indianola Ave., Columbus, Ohio....	1923
GORDON, SETH EDWIN, 1218 Greenleaf St., Evanston, Ill.....	1924
GORMLEY, A. Liguori, 79 John St., N., Arnprior, Ont., Can.....	1918
GOULD, MRS. J. AVERY, 38 Phillips St., Andover, Mass.....	1930
**GOULD, JOSEPH EDWARD, 1920 Springfield Ave., Campostella Heights, Norfolk, Va.....	1889

- GOULD, VICTOR EUGENE, Wolfville, Nova Scotia, Can. 1930
- GOWANS, MISS ETHEL, 308 S. Lincoln St., Kent, Ohio. 1921
- GRANGE, WALLACE BYRON, Biol. Surv., Dept. Agr., Washington, D. C. 1920
- **GRANGER, WALTER WILLIS, Amer. Mus. Nat. Hist., New York, N. Y. 1891
- GRANQUIST, HARRY, 1802 Pennsylvania Ave. E., Warren, Pa. 1928
- GRANT, CLEVELAND PUTNAM, Field Museum, Chicago, Ill. 1924
- GRANT, ERNEST ROSS, Hotel Roosevelt, Washington, D. C. 1927
- GRANT, MARTIN LAWRENCE, 92 Morgan St., Oberlin, Ohio. 1926
- GRANT, WILLIAM WRIGHT, 816 S. Main St., Geneva, N. Y. 1910
- GRASSETT, FRANK GODWIN, 535 Green Bay Road, Glencoe, Ill. 1923
- GRAVES, MRS. CHARLES BURR, 4 Mercer St., New London, Conn. 1905
- GRAY, ALWYN EVERETT, 304 East 12th Street, Oklahoma City, Okla. 1923
- GRAY, GEORGE W., Greenvale Farm, Poughkeepsie, N. Y. 1920
- GREELEY, JOHN RICHARD, 1320 North Univ. Ave., Ann Arbor, Mich. 1925
- GREEN, EDWIN LUTHER, JR., 328 Moore St., Columbia, S. C. 1928
- GREEN, PROF. GEORGE REX, 511 South Atherton St., State College,
Pa. 1927
- *GREEN, MORRIS MILLER, 39 Wyoming Ave., Ardmore, Pa. 1921
- GREEN, THOMAS DUNBAR, Hotel Woodward, Broadway & 55th St.,
New York, N. Y. 1929
- GREENE, EARL ROSENBURY, 642 Orme Circle, Atlanta, Ga. 1921
- GREENFIELD, RAY HERBERT, 124 Maple Ave., Takoma Park, Md. 1929
- GREENOUGH, HENRY VOSE, 39 Worthington Road, Brookline, Mass. 1901
- GREENWAY, JAMES COWAN, JR., Greenwich, Conn. 1930
- GREENWELL, GUY AYTCH, 900 East 7th St., Joplin, Mo. 1928
- GREENWOOD, CHRISTOPHER, Rt. 1, Lausana, Alberta, Can. 1926
- GREGORY, REV. CAREY ELLIS, Box 215, Morganton, N. C. 1922
- GREGORY, STEPHEN STRONG, JR., Box N, Winnetka, Ill. 1906
- GRESHAM, ALBERT BURTON, 568 St. John's Ave., Winnipeg, Man., Can. 1929
- GRIFFITH, MISS MARY CLARK, 119 Dean St., West Chester, Pa. 1930
- GRIMES, SAMUEL ANDREW, 3615 Mayflower St., Jacksonville, Fla. 1925
- GRISCOM, MRS. EVERETT SAMUEL, Roslyn, Montgomery Co., Pa. 1929
- GROFF, MISS FRANCES LLOYD, 19 West Union St., West Chester, Pa. 1929
- GROMME, OWEN JUSTUS, Public Museum, Milwaukee, Wis. 1924
- GRUDE, INGEBRET, Victor, Teller Co., Colo. 1929
- *GUERNSEY, RAYMOND GANO, Eden Terrace, Poughkeepsie, N. Y. 1928
- *GUILD, EASTHAM, Box 56, Papeete, Tahiti 1930
- GUNTHER, DR. HORACE, University Sta., Tucson, Ariz. 1919
- GUTHRIE, DR. DONALD, Sayre, Pa. 1930
- HABER, MRS. VERNON RAYMOND, 355 W. Ridge Ave., State College,
Pa. 1929
- HADELER, EDWARD WILLIAM, 336 S. State St., Painesville, Ohio. 1920
- HADLEY, ALDEN HERVEY, Nat. Assn. Audubon Societies, 1974 Broad-
way, New York, N. Y. 1906
- HAGAR, MRS. JACK, 418 West 3rd Ave., Corsicana, Texas. 1929
- HAGENBECK, LORENZ, Königstr. 45, Lokstedt, Hamburg, Germany. 1928

HAGNER, DR. FRANCIS RANDALL, 1824 19th St., N. W., Washington, D. C.....	1926
HAGUE, MISS FLORENCE, Sweet Briar College, Sweet Briar, Va.....	1930
HAHN, WILLIAM, JR., 403 Durst Ave., Greenwood, S. C.....	1925
HAILE, HENRY PENNINGTON, Hanover, N. H.....	1919
HAINES, ROBERT LEE, 111 Pinehurst Lane, Moorestown, N. J.....	1924
HALDEMAN, MISS DORIS WEISS, E. Mt. Airy Ave., Philadelphia, Pa...	1927
HALE, WILLIAM BARTON, 19 Prince St., Rochester, N. Y.....	1928
HALES, BENJAMIN JONES, Normal School, Brandon, Man., Can.....	1927
HALLINAN, THOMAS, 293 19th Ave., Paterson, N. J.....	1919
HALLINEN, JOSEPH EDWARD, Rt. 1., Cooperton, Okla.....	1919
HALLMAN, ROY CLINE, Box 847, St. Augustine, Fla.....	1928
HALLOWELL, FRANK WALTON, 252 Summer St., Boston, Mass.....	1927
HALVERSON, DR. HAROLD MARTIN, 312 Pearl St., Yankton, S. Dak...	1924
HAMILL, MRS. LAFAYETTE C., 477 Grove St., Worcester, Mass.....	1924
HAMILTON, ARTHUR LINCOLN, 836 North Raymond Ave., Pasadena, Calif.....	1929
HAMILTON, WILLIAM JOHN, JR., Dept. Biol., Cornell Univ., Ithaca, N. Y.....	1924
HAMMOND, DR. ROLAND, 41 Boylston Ave., Providence, R. I.....	1924
HANCOCK, JOHN BUCKLEY, 527 Laurel Ave., Bridgeport, Conn.....	1929
HAND, RALPH LEVI, U. S. Forest Service, Avery, Idaho.....	1929
HANDLEY, CHARLES OVERTON, Ashland, Va.....	1916
HANDSAKER, RALPH, Colo, Iowa.....	1922
HANKINSON, THOMAS LEROY, 96 Oakwood Ave., Ypsilanti, Mich....	1897
HANN, HARRY WILBUR, Zool. Dept., Univ. Mich., Ann Arbor, Mich...	1930
HANNA, DR. G. DALLAS, Calif. Acad. Sci., San Francisco, Calif.....	1930
HANNA, WILSON CREAL, 141 East F St., Colton, Calif.....	1919
HARDING, MRS. RICHARD BRUCE, 121 University Road, Brookline, Mass.....	1922
HARING, MRS. INEZ MARIA, Woodland, Ulster Co., N. Y.....	1921
HARKIN, HON. JAMES BERNARD, Commr. Canadian Nat. Parks, Otta- wa, Can.....	1921
HARRELSON, MARTIN, Belton, Cass Co., Mo.....	1930
HARRINGTON, MRS. ALICE BOWERS, 18 Winsom St., Waltham, Mass...	1929
HARRINGTON, DR. PAUL, 813 Bathurst St., Toronto, Ont., Can.....	1922
HARRIS, ARTHUR LESLIE, Ultimo House, Kangaloon Rd., Bowrall, N. S. W., Australia.....	1929
HARRIS, LUCIEN JR., 151 Jefferson Place, Decatur, Ga.....	1930
HARRIS, ROBERT DOUGLAS, 243 Linwood St., St. James, Winnipeg, Man., Can.....	1929
*HARRIS, WILLIAM PICKETT, 15410 Windmill Point Drive, Grosse Pointe Parks, Mich.....	1925
*HARRISON, GEORGE LEIB, JR., 1520 Locust St., Philadelphia, Pa....	1919
HART, CECIL, 132 N. 3rd St., Montebello, Los Angeles Co., Calif.....	1921
HART, WILLIAM STEPHEN, Box 1185, Montreal, Que., Can.....	1926

HARTER, SAMUEL GEORGE, 4174 Georgia St., San Diego, Calif.....	1926
HARVEY, MISS GERTRUDE FOY, 118 W. Cooke Ave., Glenolden, Pa....	1929
HARVEY, JOHN LeGRAND, Mercantile Bldg., Waltham, Mass.....	1916
HARVEY, ROGER DOUGLAS, Bellavista, Cerro de Pasco, Peru.....	1927
HARWELL, CHARLES ALBERT, P. O. Box 457, Yosemite National Park, Calif.....	1929
HASBROUCK, HENRY CRANE, 895 West End Ave., New York, N. Y....	1920
*HASKELL, MISS SADIA, 3828 30th St., Mt. Rainier, Md.....	1916
HASTINGS, WALTER ERNEST, Box 181, Howell, Mich.....	1921
HATCH, MRS. JOHN ELLSWORTH, 1165 East Ocean Ave., Long Beach, Calif.....	1929
HATHAWAY, ALTON HASTINGS, 25 Oakland St., Lexington, Mass....	1921
HATHAWAY, MRS. EMILY LOUISE, Spring St., Rt. 1, W. Bridgewater, Mass.....	1920
HATHAWAY, HENRY SEDGEWICK, Norwood and Thorn Aves., South Auburn, R. I.....	1897
HAULTAIN, CHARLES FREDERICK, Port Hope, Ont., Can.....	1923
HAUSMAN, DR. LEON AUGUSTUS, 259 Harrison Ave., New Brunswick, N. J.....	1928
HAUTHAWAY, CLARENCE LITTLE, 346 Congress St., Boston, Mass....	1927
HAVEMEYER, HENRY OSBORNE, Mahwah, N. J.....	1893
HAVEMEYER, HENRY OSBORNE, JR., Mahwah, N. J.....	1919
HAVERSCHMIDT, FRANCOIS, Kromme Nieuwe Gracht 50, Utrecht, Hol- land.....	1928
HAVEN, HERBERT MAURICE WEST, 500 Forest Ave., Portland, Maine.	1920
HAWORTH, MISS MARY MAUD ALICE, Mosscroft, Edgeworth, Sewick- ley, Pa.....	1925
HAYES, MRS. EDWIN AUGUSTUS, 466 Elm St., New Haven, Conn....	1927
HEBARD, DANIEL LEARNED, 2713 Fidelity Trust Bldg., Philadelphia, Pa.	1928
HEBARD, FREDERICK V., 7907 Winston Road, Chestnut Hill, Pa.....	1930
HEBARD, MISS HELEN ELIZABETH, Bells Mill Road and Germantown Ave., Chestnut Hill, Philadelphia, Pa.....	1929
HEGEMAN, MRS. CHARLES STEDMAN, 16 Wilde Place, Montclair, N. J..	1923
HEGNER, FRANCIS ARNOLD, 513 Hill St., Sewickley, Pa.....	1924
HEILFURTH, FRITZ, Colegio Aleman, Calzada de la Piedad, City of Mexico, D. F., Mexico.....	1926
HEILNER, VAN CAMPEN, Spring Lake Beach, N. J.....	1925
HELPER, MISS LOUISE, 111 Ninth St., Watkins Glen, N. Y.....	1929
*HELME, ARTHUR HUDSON, Miller Place, N. Y.....	1888
HELMUTH, WILLIAM TOD, 3RD, 1211 Madison Ave., New York, N. Y..	1923
HEMPHILL, ASHTON ERASTUS, 598 Dwight St., Holyoke, Mass.....	1919
HEMPHILL, FREDERICK ARNOLD, 128 Broad St., Elizabeth, N. J.....	1929
HENDERSON, ARCHIBALD DOUGLAS, Belvedere, Alberta, Can.....	1924
HENDERSON, WALTER CLEAVELAND, 8 Magnolia Parkway, Chevy Chase, Md.....	1917
HENNESSY, THOMAS SANSFIELD, 19 Loretta St., Ottawa, Ont., Can....	1930

HENSHAW, SAMUEL, 28 Fayerweather St., Cambridge, Mass.	1924
HERMAN, MRS. ERVINE OLNEY, Momence, Ill.	1928
HERMANN, FREDERICK JOSEPH, Dept. Botany, Univ. Mich., Ann Arbor, Mich.	1930
HERMAN, DR. WILLIAM CEPHAS, 19 West 7th St., Cincinnati, Ohio. . .	1921
*HERRICK, HAROLD, 141 Broadway, New York, N. Y.	1905
HIATT, BENJAMIN CHAPMAN, 119 E. Montgomery Ave., Ardmore, Pa. .	1925
HIBBERT, MRS. HAROLD, 17 Parkside Place, Cote de Neiges Road, Montreal, Que., Can.	1926
HICKS, LAWRENCE EMERSON, Botany Dept., Ohio State Univ., Columbus, Ohio.	1929
HIGGONS, EARL THOMAS, 213 Harrogate Rd., W. Park P. O., Penn Wynne, Pa.	1929
*HIGHAM, WALTER ERNEST, The Oaks, Clayton-le-Dale, near Blackburn, England.	1928
HILDRETH, MISS ELLEN ELIZABETH, 126 Coolidge Hill, Cambridge, Mass.	1922
HILL, MRS. THOMAS ROBY, 4011 Baltimore Ave., Philadelphia, Pa. . .	1903
HINCHMAN, RICHARD, MAY 501 Randolph Ave., Milton, Mass.	1930
HINCKLEY, GEORGE LYMAN, 113 Touro St., Newport, R. I.	1912
HINE, ASHLEY, 8131 Euclid Ave., Chicago, Ill.	1922
HINSHAW, THOMAS DOANE, 1908 Scottwood Ave., Ann Arbor, Mich. .	1930
HITCHCOCK, FRANK HARRIS, Metropolitan Club, 1 East 60th St., New York, N. Y.	1921
HIX, GEORGE EDWARD, 337 72nd St., Brooklyn, N. Y.	1904
HOFFMAN, EDWARD CARLTON, 1041 Forest Cliff Drive, Lakewood, Ohio.	1928
HOFFMAN, IRVIN NEWTON, 1513 30th St., N. W. Washington, D. C. . .	1924
HOFFMAN, PAUL WILLIAM, 1573 12th St., Milwaukee, Wis.	1924
HOFFMANN, DR. BERNHARD, Uhlandstr. 16, Dresden 24, Germany. . .	1929
HOLLAND, HAROLD MAY, Box 515, Galesburg, Ill.	1910
HOLLAND, DR. WILLIAM JACOB, Carnegie Museum, Pittsburgh, Pa. .	1899
HOLLISTER, GEORGE BUELL, 4 E. 5th St., Corning, N. Y.	1919
HOLLISTER, WARREN DALE, Delavan, Wis.	1901
HOLMAN, JOHN PAULISON, Fairfield, Conn.	1922
HOLTZINGER, HANS, Holtzingerstr. 4, Oldenburg i. O., Germany. . .	1928
HONYWILL, ALBERT WILLIAM, JR., 17400 Wildemere Ave., Detroit, Mich.	1907
HOPKINS, GEORGE IRVING, 841 Beech St., Manchester, N. H.	1922
HORNER, MISS HANNAH MEE, 24 Kent Rd., Stonehurst, Upper Darby, Pa.	1929
HORSEY, RICHARD EDGAR, Highland P'k, Reservoir Ave., Rochester, N. Y.	1919
HORSFALL, ROBERT BRUCE, c/o Nature Magazine, 1214 16th St., N. W., Washington, D. C.	1905
HOSKINSON, PROF. CLARENCE EDWIN, Box 224, Clarinda, Iowa.	1928

- HOUGHTON, CLARENCE, 433 Clinton Ave., Albany, N. Y.....1920
 HOWATT, DR. GILBERT ANDREW, 1922 F St., Eureka, Calif.....1924
 HOWE, CLIFTON DURANT, Univ. Toronto, Toronto, Ont., Can.....1921
 HOWELL, JOSEPH, 914 Lucern Terrace, Orlando, Fla.....1928
 HOWLAND, RANDOLPH HUGHBERT, 164 Wildwood Ave., Upper Mont-
 clair, N. J.....1903
 HUBBARD, MRS. FRANK DEXTER, 81 Barnett St., New Haven, Conn...1923
 HUBBARD, HUGH WELLS, American Board Mission, Paotingfu, China.1928
 HUBBARD, PROF. MARIAN ELIZABETH, Hallowell House, Wellesley 81,
 Mass.....1916
 HUBER, MRS. WHARTON, 225 St. Mark's Square, Philadelphia, Pa....1926
 HUDSON, GEORGE ELFORD, 4635 Knox St., Lincoln Nebr.....1928
 HUEY, LAURENCE MARKHAM, Nat. Hist. Mus., Balboa Park, San
 Diego, Calif.....1920
 HUFF, PROF. NED L., 1219 7th St., S. E., Minneapolis, Minn.....1924
 HUGHES, GEORGE THOMAS, Box 153, Plainfield, N. J.....1919
 HUGHES, DR. WILLIAM ELLERY, 3945 Chestnut St., Philadelphia, Pa.1920
 HULL, ARCHIE VILAN, 423 West Forest St., Brigham City, Utah.....1926
 HULSBERG, EDMUND FRANK, 340 S. Catherine Ave., La Grange, Ill...1928
 HUNN, MISS DOLORES REISSIG DE MURGUIONDO, 1218 Prospect Ave.,
 Plainfield, N. J.....1929
 HUNN, JOHN TOWNSEND SHARPLESS, 1218 Prospect Ave., Plainfield,
 N. J.....1895
 HUNSAKER, WALTER J., 430 N. Jefferson Ave., Saginaw, Mich.....1928
 HUNT, CHRISWELL JOHN, 810 S. 18th Ave., Maywood, Ill.....1919
 HUNT, MISS HELEN CUMMINGS, 51 Brattle St., Cambridge, Mass....1928
 HUNT, JAMES HENRY, JR., Croton Road, Wayne, Pa.....1930
 HUNT, MISS LUCY OLCOTT, 185 Beacon St., Hartford, Conn.....1919
 HUNTER, MRS. KATHARINE UPHAM, Cupola Farm, West Claremont,
 N. H.....1923
 HURD, MISS FRANCES AMELIA, 119 West Ave., South Norwalk, Conn.1919
 HUTCHINS, CHARLES BOWMAN, 835 9th St., Boulder, Colo.....1930
 HUTCHINSON, GEORGE ROWLAND, P. O. Box 770, Auckland, New Zea-
 land.....1930
 *HUYLER, COULTER DUNHAM, 17 East 45th St., New York, N. Y....1928
 HUYLER, MRS. COULTER DUNHAM, Greenwich, Conn.....1928
 HYDE, ARTHUR SIDNEY, Dept. Biol., Temple Univ., Philadelphia, Pa.1921
 HYDE, BENJAMIN TALBOT BABBITT, 558 Camino del Monte Sol, Santa
 Fe, N. M.....1925
 HYDE, MRS. SILKMAN ELTING, Mayfield, Idaho.....1918
 HYSLOP, SAMUEL, 42 Bellevue St., Newton, Mass.....1919
 ICKES, RAYMOND, 900 S. Private Road, Hubbard Woods, Ill.....1928
 IJAMS, HENRY PEARLE, R. F. D. 9, Knoxville, Tenn.....1922
 INGALLS, MRS. LLOYD OSCAR, 250 S. Sultana Ave., Temple City, Calif.1925
 **INGERSOLL, ALBERT MILLS, 908 F St., San Diego, Calif.....1885
 INGERSOLL, ROBERT STURGIS, 1035 Land Title Bldg., Philadelphia, Pa.1925

- INGRAHAM, EDWARD ANDREWS, 444 Clinton Ave., Brooklyn, N. Y. 1930
- INGRAM, GEOFFREY CHESELDEN SPENCER, 22 Waterloo Road, Roath,
Cardiff, South Wales 1928
- IREY, MISS JOSEPHINE LAURA, 6626 First St. n. w., Takoma Park,
Washington, D. C. 1930
- ISENBERG, A. H., 286 Atherton Ave., Menlo Park, Calif. 1929
- **ISHAM, CHARLES BRADLEY, 909 Valley Rd., Upper Montclair, N. J. 1891
- IVES, FREDERICK MANLEY, JR., 305 Highland Ave., Winchester, Mass. 1930
- JACKSON, DR. HARTLEY HARROD THOMPSON, Biological Survey,
Washington, D. C. 1910
- JACOBI, DR. ARNOLD, Museum fur Tierkunde, Dresden 1, Germany . . 1929
- JACOBS, MISS MARTHA LOUISE, 404 S. Washington St., Waynesburg,
Pa. 1927
- JACOBS, WILLIAM FRANCIS, 404 S. Washington St., Waynesburg, Pa. . 1924
- JACOT, EDWARD CESAR, Box 462, Prescott, Ariz. 1923
- JAMES, MRS. ALVIN ORLANDO, 4100 Grove Ave., Richmond, Va. 1925
- JAMES, NORMAN, P. O. Drawer D2, Baltimore, Md. 1913
- JANVRIN, DR. EDMUND RANDOLPH PEASLEE, 38 East 85th St., New
York, N. Y. 1919
- JAQUES, FRANCIS LEE, Am. Mus. Nat. Hist., New York, N. Y. 1924
- JARRARD, MISS BERMA LUCILLE, Apt. 7, 1098 North Ave., N. E.,
Atlanta, Ga. 1928
- JAY, WILLIAM, 5358 Winghocking Terrace, Germantown, Philadel-
phia, Pa. 1921
- JEFFERSON, MRS. EDITH HURLBUT, 1381 Prairie Ave., Des Plaines, Ill. 1929
- JELIER, FRANCISCUS PETER, Groote Visscherijstraat 19a, Rotterdam,
Holland 1928
- JENKINS, STEPHEN WATERS, 103 Columbus Ave., Salem Willows,
Mass. 1930
- JENKS, RANDOLPH, Mt. Kemble, Morristown, N. J. 1928
- JENNINGS, DR. GEORGE HERMAN, Jewett City, Conn. 1918
- JENNINGS, RICHARD DUDLEY, 227 Harrison St., East Orange, N. J. . . . 1913
- JENNISON, FRANCIS JOSEPH, Box 939, Marquette, Mich. 1925
- JENSEN, JENS KNUDSEN, Canyon Road, Santa Fe, N. M. 1912
- JENSEN, JESSE PETER, Box 364, Dassel, Minn. 1926
- JOHNSON, ARCHIBALD, Route 2, Jamestown, N. Dak. 1930
- *JOHNSON, CHARLES ALFRED, 1030 15th St., Denver, Colo. 1927
- JOHNSON, PROF. CHARLES EUGENE, College Forestry, Syracuse, N. Y. . 1919
- JOHNSON, MRS. GRACE PETTIS, Museum Nat. Hist., Springfield, Mass. 1908
- JOHNSON, PROF. ROBERT ANTHONY, Science Dept., State Normal
School, Oneonta, N. Y. 1930
- JOHNSTON, ISRAEL HAYLOCK, 733 Myrtle Ave., Charleston, W. Va. . . . 1922
- JOHNSTON, ROBERT P., West House, Wigton, Cumberland, England. . 1930
- JONES, CHARLES LESLIE, P. O. Box 223, Weldon, N. C. 1929
- JONES, HAROLD CHARLES, 352 W. College St., Oberlin, Ohio 1924
- JONES, JOHN COURTS, 3224 19th St., N. W., Washington, D. C. 1930

JONES, DR. LOMBARD CARTER, Falmouth, Mass.....	1917
JONES, NELSON TAYLOR, Royal Ontario Mus., Toronto, Ont., Can....	1925
JONES, S(OLOMON) PAUL, 509 West Ave., North, Waukesha, Wis.....	1920
JONES, WILLIAM FROST, Norway, Maine.....	1918
**JORDAN, ALVAH HENRY BEDELL, Lowell, Wash.....	1888
JUNG, CLARENCE SCHRAM, 2502 Stratford Ct., Milwaukee, Wis.....	1921
JUNK, DR. WILHELM, Sachsische Strasse 68, Berlin, W. 15, Germany..	1928
KAHMAN, KARL WILLIAM, Rt. 2, Hayward, Wis.....	1925
KALTER, LOUIS BIESER, 535 Belmont Park N., Dayton, Ohio.....	1930
KASSOY, IRVING, 762 Manida St., Bronx, New York, N. Y.....	1929
KAVANAGH, THOMAS JOSEPH, c/o W. J. McCahans, Tasker St. Wharf, Philadelphia, Pa.....	1929
KEALY, MISS LULU, 14 Blackburn Ave., Ottawa, Ont., Can.....	1926
KEANE, MELVIN PETER, 45 West 8th St., New York, N. Y.....	1929
KEAYS, JAMES EDWARD, 328 St. George St., London, Ont., Can.....	1899
KEE, HUNTER, 36 9th Ave., Marlinton, W. Va.....	1920
KEESLER, RAY LEWIS, Box 147, Forestville, Butler Co., Pa.....	1924
KELLEY, NORMAN PANTON, 625 Oriole Parkway, Toronto, Ont., Can..	1927
KELLOGG, PAUL, 11 Church St., Cortland, N. Y.....	1929
KELLOGG, RALPH TODD, Silver City, N. M.....	1913
KELLY, MRS. GEORGE EARLE, 1311 Grand St., Alameda, Calif.....	1929
KELLY, WILLIAM NIELSON, Terminal City Club, Vancouver, B. C., Can.....	1927
KELSEY, HARLAN PAGE, 1 Pickering St., Salem, Mass.....	1930
KELSO, DR. JOHN EDWARD HARRY, Edgewood, Lower Arrow Lake, B. C., Can.....	1915
KELSO, LEON, Biol. Survey, Dept. Agr., Washington, D. C.....	1929
KEMSIES, EMERSON, 37 Morgan St., Oberlin, Ohio.....	1927
KENDEIGH, SAMUEL CHARLES, Adelbert College, Western Reserve Univ., Cleveland, Ohio.....	1923
KENNEDY, DR. HARRIS, Readville 37, Mass.....	1916
*KENNEDY, HARRY HOWARD, Box 710, Reno, Nev.....	1920
KENNEDY, HOMER NEY, Garrett Park, Md.....	1924
KENT, DUANE ELSON, 39 Moore Place, Rutland, Vt.....	1913
KENT, EDWARD GRUET, 9 Highland Ave., Madison, N. J.....	1919
KENT, EDWIN CLARK, 80 William St., New York, N. Y.....	1907
KEPNER, MRS. CLYDE METZGER, R. F. D. 2, Randallstown, Md.....	1922
KERMODE, FRANCIS, Provincial Museum, Victoria, B. C., Can.....	1926
KERN, DR. SAMUEL BENJAMIN, 662 Main St., Slatington, Pa.....	1925
KERRUISH, MRS. ELLA BEMIS, Littleton, Colo.....	1929
KESSLER, MISS JOSEPHINE DILWORTH, 472 West Manheim St., Ger- mantown, Philadelphia, Pa.....	1929
KEYES, MRS. CHARLES FREDERICK, 2225 Lake of Isles Blvd., Min- neapolis, Minn.....	1922
*KIDDER, NATHANIEL THAYER, Milton, Mass.....	1906

KIEFNER, CHARLES HAROLD, Allerton House, 45 East 55th St., New York, N. Y.....	1926
KILGORE, WILLIAM, JR., Mus. Nat. Hist., Univ. Minn., Minneapolis, Minn.....	1906
KILGUS, JOHN FRANK, JR., 422 High St., Williamsport, Pa.....	1922
KING, MISS GRACE WALKER, 11 Heath Hill, Brookline, Mass.....	1924
KING, IRVING J., Collins Center, Erie Co., N. Y.....	1924
KING, LeROY, 1 Cedar St., New York, N. Y.....	1901
*KIRKHAM, STANTON DAVIS, 152 Howell St., Canandaigua, N. Y.....	1910
KIRKPATRICK, DONALD NORRIS, 710 Clay Ave., Scranton, Pa.....	1926
KIRKPATRICK, HARRY CLAY, 1166 Water St., Meadville, Pa.....	1921
KIRKWOOD, FRANK COATES, Phoenix, Baltimore Co., Md.....	1892
*KIRN, ALBERT JOSEPH BERNARD, Box 157, Somerset, Texas.....	1918
KITTREDGE, JOSEPH, JR., Lake States Forest Exp. Sta., Univ. Farm, St. Paul, Minn.....	1910
KLAGES, SAMUEL MILTON, c/o Dept. Entomology, Carnegie Museum, Pittsburgh, Pa.....	1929
KLINCK, NORMAN E., 38 West Parade Ave., Buffalo, N. Y.....	1928
KLOSEMAN, MISS JESSIE EMMA, 60 Charlesgate East, Suite 127, Boston, Mass.....	1909
*KLOTZ, CHARLES DOLESE, P. O. Box 142, Pearisburg, Va.....	1923
KNAEBEL, ERNEST, 3707 Morrison St., Washington, D. C.....	1906
KNAPP, ELMER, R. R. 2, Troy, Pa.....	1929
KNAPPEN, MISS PHOEBE MALURA, 2925 Tilden St., N. W., Washington, D. C.....	1924
KNAPPEN, MRS. THEODORE MACFARLANE, 2925 Tilden St., N. W., Washington,, D. C.....	1926
*KNICKERBOCKER, CHARLES KENNEDY, 410 N. Michigan Ave., Chicago, Ill.....	1922
KNIGHTON, JOSEPH EDWARD, 923 Erie St., Shreveport, La.....	1929
KOBEE, FREDERICK WILLIAM, 1155 Park Ave., New York, N. Y.....	1921
KOCH, DR. BASTIAN, Neuhuysskade 64, The Hague, Holland.....	1928
KRAMER, THEODORE CHRISTIAN, 2645 East 126th St., Cleveland, Ohio.....	1930
KRAUS, PHILIP BERKELEY, 92 Keene St., Providence, R. I.....	1930
KRETZMANN, DR. PAUL EDWARD, 801 DeMun Ave., St. Louis, Mo....	1913
KUBICHEK, WESLEY FRANK, Coe College, Cedar Rapids, Iowa.....	1919
KUERZI, JOHN FRANCIS, 978 Woodycrest Ave., Bronx, New York, N. Y.....	1925
KUMMERLOEWE, DR. HANS, Cichoriusstrasse 6 III, Leipzig-C., Germany.....	1928
KUSER, MRS. ANTHONY RUDOLF, Bernardsville, N. J.....	1910
KUSER, JOHN DRYDEN, Bernardsville, N. J.....	1910
LABARTHE, JULES, c/o N'Kana Mine, N'Kana via N'Dola, Northern Rhodesia, S. Africa.....	1920
LABRIE, WILLIE, Kamouraska (Moulin), Que., Can.....	1927

LACEY, MILTON SILLIMAN, 875 Main St., Bridgeport, Conn.....	1925
LA DOW, STANLEY VAUGHAN, 56 W. 12th St., New York, N. Y.....	1913
LAING, HAMILTON MACK, Comox, B. C., Can.....	1917
LAING, MISS MARY ELIZABETH, Granville, N. Y.....	1927
LAMB, CHESTER CONVERSE, Museum Vert. Zool., Berkeley, Calif.....	1926
LAMBERT, DR. ADRIAN VAN SINDEREN, 168 East 71st St., New York, N. Y.....	1930
LANCASHIRE, MRS. JAMES HENRY, 11 East 69th St., New York, N. Y.....	1909
LANCELEY, WILLIAM HENRY, 23 Elmdale Ave., Ottawa, Ont., Can.....	1926
LANDI, FLORINDO, 59 Ossining Rd., Pleasantville, N. Y.....	1925
LANE, HENRY WALLACE, Mus. of Birds & Mamm., Univ. Kansas, Law- rence, Kans.....	1930
LANG, HARRY MORSE, 1538 Rockland Ave., Beechwood, Pittsburgh, Pa.....	1924
LANG, HERBERT, Am. Mus. Nat. Hist., New York, N. Y.....	1907
LANGDON, ROY MONROE, 429 South Howes St., Fort Collins, Colo.....	1918
LANGELIER, GUSTAVE ADOLPHE, Cap Rouge, Que., Can.....	1923
LANGSTROTH, JAMES HEIDEL, "Bin D," Silver City, N. M.....	1924
LARGE, JOHN WARREN, McGraw Hall, Cornell Univ., Ithaca, N. Y.....	1929
LARRABEE, PROF. AUSTIN PARK, Yankton College, Yankton, S. Dak.....	1918
LASTRETO, CHARLES BARTHOLOMEW, 260 California St., San Francisco, Calif.....	1919
LATHAM, ROY, Orient, L. I., N. Y.....	1916
LAURENT, PHILIP, 31 E. Mt. Airy Ave., Philadelphia, Pa.....	1902
LAWRENCE, ALEXANDER GEORGE, City Health Dept., Winnipeg, Man., Can.....	1920
LAWRENCE, ROBERT BOWNE, 411 Westmoreland Ave., Houston, Texas (1883).....	1923
LAWSON, RALPH, 88 Washington Sq. East, Salem, Mass.....	1917
LAZEAR, JOHN MCKELVY, 922 S. Negley Ave., Pittsburgh, Pa.....	1922
LEFEVRE, RUFUS HARRY, Box 459, Ithaca, N. Y.....	1927
LEIGHTON, ALEXANDER HAMILTON, P. O. Box 256, Rosemont, Pa.....	1927
LEIGHTON, MRS. ARCHIBALD OGILVIE, P. O. Box 256, Rosemont, Pa.....	1927
LEISTER, CLAUDE WILLARD, Zool. Park, 185th St. & Southern Blvd., New York, N. Y.....	1916
LEMON, FRANK EDWARD, Royal Soc. Protection of Birds, 82 Victoria St., London S. W. 1, England.....	1930
LEONARD, MISS MARY BEECHER, 30 Barnes St., Providence, R. I.....	1930
LEOPOLD, ALDO, 421 Chemistry Bldg., Univ. Wis., Madison, Wis.....	1929
LERMOND, NORMAN WALLACE, R. F. D. 1, Thomaston, Maine.....	1921
LETL, FRANK HENRY, Field Mus., Chicago, Ill.....	1925
LEVI, WENDELL MITCHELL, Sumter, S. C.....	1928
LEWIS, F., Dept. Fisheries & Game, 143 King St., Melbourne, Aus- tralia.....	1929
LEWIS, JOHN BARZILLAI, P. O. Box 86, Amelia, Va.....	1924
LEWIS, MERRIAM GARRETSON, 512 Highland Rd., Lexington, Va.....	1924

LEWIS, MISS NINA FISHER, Rittenhouse Plaza, 19th & Walnut Sts., Philadelphia, Pa.....	1929
LEWY, DR. ALFRED, 2051 E. 72d Place, Chicago, Ill.....	1922
LINDSEY, DR. HOOKER OLIVER, 527 Ricou-Brewster Bldg., Shreveport, La.....	1929
LINGS, GEORGE HERBERT, Barcicroft, Didsbury, Manchester, England.....	1913
LINSDALE, DR. JEAN MYRON, Museum Vert. Zool., Berkeley, Calif.....	1922
LINTON, MORRIS ALBERT, 315 East Oak Ave., Moorestown, N. J.....	1928
LITTLE, MRS. EFFIE KEARNEY, R. F. D. 1, Lowell, Ind.....	1922
LITTLE, LUTHER, 1400 Wayne Ave., S. Pasadena, Calif.....	1913
LIVINGSTON, PHILIP ATLEE, P. O. Box 302, Narberth, Pa.....	1927
LLOYD, ALBERT COOLLEY, Churchill, Man., Can.....	1930
LLOYD, MRS. WILMOT, 582 Mariposa Ave., Rockcliffe Park, Ottawa, Ont., Can.....	1925
LOCKE, DR. EDWIN ALLEN, 311 Beacon St., Boston, Mass.....	1920
LODGE, FRED STERLING, 423 S. Stone Ave., LaGrange, Ill.....	1922
LOESCH, FRANK JOSEPH, 1540 Otis Bldg., 10 S. LaSalle St., Chicago, Ill.....	1925
LOLY, VICTOR GOLDING, Box 127, Anaheim, Calif.....	1929
LONG, HARRY VINTON, 260 Clarendon St., Boston, Mass.....	1920
LONGSTREET, RUBERT JAMES, 610 Braddock Ave., Peninsula Sta., Daytona Beach, Fla.....	1923
LOOMIS, EVARTS GREENE, 275 Montclair Ave., Newark, N. J.....	1929
LOOMIS, HOWARD B., 1300 Sunnyhills Road, Oakland, Calif.....	1929
LOOMIS, LEE JOHNSON, 202 E. Union St., Union, N. Y.....	1925
LÖPPENTHIN, BERNT OVE HARTVIG FABRICIUS, Sundholm, Copenhagen S., Denmark.....	1928
LORD, DR. FREDERIC POMEROY, 39 College St., Hanover, N. H.....	1922
LORING, JOHN ALDEN, Owego, Tioga Co., N. Y.....	1917
LOTHROP, DR. OLIVER AMES, 101 Beacon St., Boston, Mass.....	1920
LOW, DANIEL STORY, 16 Cypress St., Marblehead, Mass.....	1930
LOW, ETHELBERT IDE, 256 Broadway, New York, N. Y.....	1907
LOW, SETH HASKELL, 50 Glendale Road, Quincy, Mass.....	1930
LOW, WARWICK JAMES, 16 Highland Ave., Montreal, Que., Can.....	1923
LOWE, JOHN NICHOLAS, Specular St., Marquette, Mich.....	1925
*LOWNES, ALBERT E., P. O. Box 1531, Providence, R. I.....	1924
LUNN, MISS LULU MAY, 724 Villa St., Racine, Wis.....	1920
LUNN, MISS MARGARET ALLEN, Apt. 101, The Farnsboro, Washington, D. C.....	1919
LUTTRINGER, LEO AMOS, JR., 1203 N. 16th St., Harrisburg, Pa.....	1929
LYLE, ROBERT BARTON, No. 4 Cumberland Apts., Johnson City, Tenn.....	1929
LYNDE, DR. ROY, Ellendale, N. Dak.....	1929
LYNES, REAR ADMIRAL HUBERT, R. N., 23 Onslow Gardens, London S. W. 7, England.....	1928
LYON, DR. MARCUS WARD, JR., 214 La Porte Ave., South Bend, Ind.....	1922

- MACCOY, CLINTON VILAS, 1 Lenox Hall, 1213 Beacon St., Brookline, Mass. 1920
- MACGOWAN, W. LEROY, 3212 Park St., Jacksonville, Fla. 1930
- MACGREGOR, HUGH ALTON, Normal School, Camrose, Alberta, Can. 1930
- MACKAYE, JAMES, 6 College St., Hanover, N. H. 1921
- MACKORTH-PRÆD, CYRIL WINTHROP, Dalton Hill, Albury, Surrey, England. 1928
- MACLAREN, MISS CAROLINE ELIZABETH, Carleton Place, Ont., Can. 1928
- MACLAY, MARK WALTON, JR., 44 Wall St., New York, N. Y. 1905
- MACLENNAN, JAMES PIRRIE, 454 42nd St., Brooklyn, N. Y. 1924
- MACLOGHLIN. MRS. FFORDE EDWARD, 43 Inglewood Drive, Hamilton, Ont., Can. (1923) 1926
- MACNUTT, ERNEST GERRARD, 4308 Montrose Ave., Montreal, Can. 1928
- MACREYNOLDS, GEORGE, 76 E. State St., Doylestown, Pa. 1917
- MACTIER, ANTHONY DOUGLAS, Vice Pres. Can. Pacific Ry., Montreal, Can. 1928
- MADDOCK, MISS EMELINE, 4528 Walnut St., Philadelphia, Pa. 1897
- MADISON, HAROLD LESTER, Director Cleveland Mus. Nat. Hist., 2717 Euclid Ave., Cleveland, Ohio. 1912
- MAGEE, MICHAEL JARDEN, 603 South St., Sault Ste. Marie, Mich. 1919
- MAHER, JOHN EDWARD, 323 Pacific Ave., Jersey City, N. J. 1902
- MAIN, JOHN SMITH, 2210 Van Hise Ave., Madison, Wis. 1926
- MALCOMSON, HERBERT THOMAS, Glenorchy, Hawthornden Rd., Knock, Belfast, Ireland. 1928
- MANN, DR. WILLIAM M., Nat. Zool. Park, Washington, D. C. 1925
- MANUEL, CANUTO GUEVARRA, Museum Zool., Ann Arbor, Mich. 1929
- MAPLES, ASHLEY KILSHAW, 33 London Road, Spalding, England. 1928
- MARBLE, RICHARD MERRILL, Woodstock, Vt. 1907
- MARBURGER, CLIFFORD, Denver, Pa. 1923
- MARCOTTE, REV. LEON, St. Charles Seminary, Sherbrooke, Que., Can. 1921
- MARDEN, AARON, Eagle Id., South Harpswell, Maine. 1924
- MARESI, POMPEO M., 36 West 44th St., New York, N. Y. 1929
- MARKS, EDWARD SIDNEY, 655 Kearney Ave., Arlington, N. J. 1915
- MARSH, MISS EDITH L., Peasemars Farm, Clarksburg, Ont., Can. 1930
- *MARSHALL, MRS. ELLA MARIA ORMSBY, New Salem, Mass. 1912
- MARTIN, FRED IRVING, Rt. 1, Box 58, Manchester, N. H. 1921
- MARTIN, NELSON, 274 St. Clarens Ave., Toronto, Ont., Can. 1928
- MASON, MISS ETHEL I., Blackstone Hotel, 1016 17th St., N. W., Washington, D. C. 1930
- MASON, ROBERT FRENCH, JR., 2901 Conn. Ave., N. W., Washington, D. C. 1929
- MASON, MISS ROSALIE, c/o J. S. Mason, Route 5, Thomasville, Ga. 1928
- MASSEY, MISS ANNE, 1921 East 97th St., Suite 203, Cleveland, Ohio. 1929
- MATHEWS, FERDINAND SCHUYLER, 17 Frost St., Cambridge, Mass. 1917
- MATHEWS, DR. FRANK PELLETREAU, St. Luke's Hospital, Cathedral Heights, New York, N. Y. 1923

- MATHEWS, ROBERT STUART, 49 West 52nd St., New York, N. Y.....1928
 MATTISON, MISS MARY FRANCES, 463 North St., Anderson, S. C.....1928
 MAYAUD, NOEL, 1 rue de Bordeaux, Saumur, Maine et Loire, France..1927
 MAYFIELD, DR. GEORGE RADFORD, Calhoun Hall, Nashville, Tenn...1917
 MAYNARD, DR. HERBERT ERNEST, 464 Commonwealth Ave., Boston,
 Mass.....1921
 MAYR, DR. ERNST, Am. Mus. Nat. Hist., New York, N. Y.....1929
 McCABE, THOMAS TONKIN, Mus. Vert. Zool. Univ. Calif., Berkeley,
 Calif.....1920
 McCALL, WILLIAM WHITE, 721 Millbrook Lane, Haverford, Pa.....1921
 McCANN, HORACE DOLBEY, Valley Road, Paoli, Pa.....1923
 McCLINTOCK, NORMAN, 504 Amberson Ave., Pittsburgh, Pa.....1900
 MCCOOK, PHILIP JAMES, 413 E. 57th St., New York, N. Y.....1895
 MCCORMICK-GOODHART, LEANDER, 1785 Mass. Ave., N. W., Wash-
 ington, D. C.....1927
 MCCOY, HERBERT NEWBY, 1226 Westchester Place, Los Angeles,
 Calif.....1930
 MCCURDY, HAROLD GRIER, 318 S. Ellis St., Salisbury, N. C.....1930
 McDONALD, MRS. GEORGE, Mt. Pleasant Ave., Wyoming, Ohio.....1929
 McDONALD, NORMAN JOHN, 201 Price Ave., Narberth, Pa.....1927
 MCGAHEY, MISS PEARL HONORA, Can. Nat. Parks, Ottawa, Ont., Can.1926
 MCILHENNY, EDWARD AVERY, Avery Island, La.....1894
 MCINTOSH, FRANKLIN GRAY, 1520 Liberty St., Franklin, Pa.....1925
 MCKENNY, MISS MARGARET, Am. Mus. Nat. Hist., New York, N. Y. 1926
 MCKITTRICK, THOMAS HARRINGTON, JR., 28 Chelsea Park Gardens,
 London S. W. 3, England.....1928
 McLAIN, ROBERT BAIRD, P. O. Box 132, Hollywood Sta., Los Angeles,
 Calif.....1893
 McLEAN, DONALD DUDLEY, 101 E. St. James St., San Jose, Calif....1930
 McMANUS, REID, JR., Memramcook, New Brunswick, Can.....1930
 McMULLEN, TURNER ELLSWORTH, 933 N. 5th St., Camden, N. J....1920
 McNEIL, DR. CHARLES ANDREW, 111½ W. 4th St., Sedalia, Mo.....1919
 McNUTT, MISS DOROTHEA ROSALIE, Greensboro College, Greensboro,
 N. C.....1930
 MEAD, MRS. ELDORA MEHITABLE, 51 E. 78th St., New York, N. Y....1904
 MEAD, LYLE GAGE, 709 N. Pine Ave., Austin Sta., Chicago, Ill.....1921
 MEADOWS, DONALD CHARLES, 231 N. Grand St., Orange, Calif.....1929
 MEDSGER, OLIVER PERRY, 9 Columbia Ave., Arlington, N. J.....1919
 MEIKLEJOHN, LT. COL. RONALD FORBES, c/o Lloyd's Bank Ltd. (Sec-
 tion F.2), 6 Pall Mall, London S. W. 1, England.....1928
 MELCHER, MRS. CHARLES WOODBURY, 736 Randall St., Downers Grove,
 Ill.....1922
 MENGEL, GEORGE HENRY, 739 Madison Ave., Reading, Pa.....1913
 MENNINGER, DR. WILLIAM CLAIRE, 1280 Duane St., Topeka, Kansas. 1919
 MEREDITH, REX, 121 Monckton Ave., Quebec, Can.....1927

- MERRIAM, DR. HENRY FRANKLIN, 165 Orange Heights Ave., W. Orange
N. J. 1905
- MERRILL, MRS. CHARLES HUDSON SAYRE, 95 Hinckley Road, Milton,
Mass. 1924
- MERRILL, DAYTON EUGENE, 5th and Sycamore Sts., Rogers, Ark. 1913
- MERRIMAN, ROBERT OWEN, 101 Clergy St., W., Kingston, Ont., Can. 1920
- MERRING, REV. EDWIN ERNEST, 217 Onondaga Ave., Syracuse, N. Y. 1930
- *MERSHON, WILLIAM BUTTS, Saginaw, Mich. 1905
- MESSER, DON VINAL, Huntington, Mass. 1924
- METCALF, JESSE, 654 Madison Ave., New York, N. Y. 1926
- METCALF, DR. ZENO PAYNE, State College Station, Raleigh, N. C. 1913
- METZGER, CHARLES THOMAS, 6312 S. Ashland Ave., Chicago, Ill. 1929
- *MEYER, MISS HELOISE, LENOX, Mass. 1913
- MICHENER, HAROLD, 418 N. Hudson Ave., Pasadena, Calif. 1926
- MIDDLETON, RAYMOND JONES, Marshall St., and Whitehall Road,
Norristown, Pa. 1920
- MILLEN, MISS CHARLOTTE, Standish Hall, Hull, Que., Can. 1928
- MILLER, ALDEN HOLMES, Museum Vert. Zool., Berkeley, Calif. 1929
- MILLER, MISS BERTHA STUART, Capstone Farm, R. 3, Kingston, N. Y. 1915
- MILLER, GERALD AUSTIN, 302 Marshall St., Syracuse, N. Y. 1929
- MILLER, ISAAC PENNINGTON 111 South 4th St., Philadelphia, Pa. 1925
- MILLER, MISS MARY MANN, 5928 Hayes Ave., Los Angeles, Calif. 1921
- MILLER, RICHARD FIELDS, 2627 North Second St., Philadelphia, Pa. 1928
- MILLIKEN, ARTHUR, Brooks School, North Andover, Mass. 1930
- MILLS, DUDLEY HOLBROOK, Glen Cove, L. I., N. Y. 1929
- MILLS, HERBERT H., Jenkintown Manor, Jenkintown, Pa. 1927
- MILLS, WIER ROBSON, Pierson, Iowa. 1920
- MINER, JACK, Kingsville, Ont., Can. 1927
- MINER, LEO DWIGHT, 2910 44th Place, N. W., Washington, D. C. 1913
- MINNICH, MISS FRANCES, 2015 North B St., Elwood, Ind. 1929
- MIRICK, HENRY DUSTIN, 3637 Locust St., Philadelphia, Pa. 1925
- MITCHELL, MISS CATHERINE ADAMS, 144 Fairbank Road, Riverside,
Ill. 1911
- MITCHELL, HAROLD DIES, 428 Huntingdon Ave., Buffalo, N. Y. 1930
- MITCHELL, HORACE HEDLEY, 1232 15th Ave., Regina, Sask., Can. 1918
- MITCHELL, MRS. OSBORNE SINDEN, 24 Wychwood Park, Toronto, 10,
Ont., Can. 1928
- MITCHELL, DR. WALTON IUNGERICH, 1644 Visalia St., Berkeley, Calif. 1893
- MITCHELL, WILLIAM GORDON, c/o Price Bros. Ltd., Quebec, Can. 1926
- MITSCH, GRANT EMERSON, Brownsville, Ore. 1926
- MOFFITT, JAMES, 1879 Broadway, San Francisco, Calif. 1926
- MONK, HARRY CRAWFORD, Avoca Apts., Nashville, Tenn. 1921
- MOODY, ADELBERT JOHN, c/o Aetna Life Ins. Co., Hartford, Conn. 1918
- MOORE, H., Sansorino, Tadworth, Surrey, England. 1930
- MOORE, JOHN ALEXANDER, The Maury, 19th & G Sts., N. W., Wash-
ington, D. C. 1930

MOORE, MRS. NETTIE LOUISE PURDY, 941 Starkwether Ave., Plymouth, Mich.....	1925
MOORE, ROBERT DUNHAM, 744 Walnut Ave., Redlands, Calif.....	1929
MOORE, WILLIAM HENRY, R. M. D. 1, Mouth Keswick, York Co., N. B., Can.....	1928
MOORHEAD, HORACE REYNOLDS, Apt. 3 East, 1155 Park Ave., New York, N. Y.....	1926
**MORCOM, GEORGE FREAN, 243 N. Coronado St., Los Angeles, Calif.....	1886
MORE, ROBERT LEE, 1905 Wilbarger St., Vernon, Texas.....	1921
MOREHOUSE, BEAUMONT JOHN, Forestby, Branchville, Conn.....	1926
MOREY, MRS. LILLIAN DAME, Pinchurst Circle, Chevy Chase, Md.....	1924
MORGAN, BRENT MACFARLAND, 224 11th St., S. W., Washington, D. C.....	1919
*MORGAN, JOHN SAGE, 27 Circuit Road, Chestnut Hills, Mass.....	1927
MORRELL, DR. ARCH HIRAM, 210 Maine Ave., Gardiner, Maine.....	1923
MORRIS, MISS GRACE ALGER, Eagle Rock, Pa.....	1924
*MORRIS, DR. LEWIS RUTHERFORD, 1030 Fifth Ave., New York, N. Y.....	1923
MORRISON, ALVA, 100 Milk St., Boston, Mass.....	1915
MORSE, ALBERT PITTS, Peabody Museum, Salem, Mass.....	1930
MORSE, FRANK EUGENE, 162 Boylston St., Boston, Mass.....	1921
MORSE, GEORGE WASHINGTON, 318 East 9th St., Tulsa, Okla.....	1922
MORSE, MISS MARGARETTE ELTHEA, Viroqua, Wis.....	1919
MOSELEY, PROF. EDWIN LINCOLN, Bowling Green, Ohio.....	1918
MOULTON, FRANCIS SEVERN, 155 Adams St., Milton, Mass.....	1926
MOULTON, HERBERT FRANCIS, 132 North St., Ware, Mass.....	1920
MOYER, JOHN WILLIAM, Field Mus. Nat. Hist., Chicago, Ill.....	1928
MULLER, CARL LURNAM, 31 East 65th St., New York, N. Y.....	1925
MUNN, CAPT. PHILIP WINCHESTER, Puerto Alcudia, Majorca, Balearic Isles, Spain.....	1929
MUNTER, CAPT. WILLIAM HENRY, U. S. Coast Guard, c/o Eastern Division, Custom House, Boston, Mass.....	1927
MURIE, OLAUS JOHAN, Jackson, Wyo.....	1913
MURPHY, MRS. GRACE EMELINE BARSTOW, 45 Oriole Ave., Bronxville, N. Y.....	1919
MURRAY, EDGAR ANTHONY, 3431 Seminole Drive, Detroit, Mich.....	1919
MURRAY, REV. JAMES JOSEPH, D.D., 6 White St., Lexington, Va.....	1928
MUSSELMAN, THOMAS EDGAR, 124 S. 24th St., Quincy, Ill.....	1922
MUSSER, JAMES, R. F. D. 2, East Earl, Lancaster Co., Pa.....	1928
MYERS, EVERETT CLARK, Zool. Dept., Dartmouth College, Hanover, N. H.....	1924
MYERS, MRS. HARRIET WILLIAMS, 311 N. Ave. 66, Los Angeles, Calif.....	1906
MYERS, ORD, 216th St. and 9th Ave., New York, N. Y.....	1922
NAUMBURG, WALTER WEHLE, 48 Wall St., New York, N. Y.....	1923
*NEELY, JAMES C., 135 High St., Brookline, Mass.....	1919
NEFF, JOHNSON ANDREW, Box 935, Marysville, Calif.....	1919
NEFF, WILLIAM GRANT, 26 Wells Ave., Brantford, Ont. Can.....	1926

NELSON, MISS THEODORA, 61 E. 86th St., New York, N. Y.....	1927
NETTING, MORRIS GRAHAM, JR., Carnegie Museum, Pittsburgh, Pa....	1925
NEWBOLD, CLEMENT BIDDLE, Gate Farm, Jenkintown, Pa.....	1929
NEWCOMB, CYRENIUS ADELBERT, JR., Rt. 3, Pontiac, Mich.....	1920
NEWCOMBE, W. A., 138 Dallas Rd., Victoria, B. C., Can.....	1929
NEWELL, MRS. H. S., Board of Trade Bldg., Duluth, Minn.....	1926
NICE, MRS. MARGARET MORSE, 156 W. Patterson Ave., Columbus, Ohio.....	1920
NICHOLS, LEON NELSON, 181 Claremont Ave., New York, N. Y.....	1917
NICHOLS, RODMAN ARMITAGE, 7 S. Pine St., Salem, Mass.....	1919
NICHOLSON, DONALD JOHN, P. O. Box 631, Orlando, Fla.....	1925
NICHOLSON, WALTER ALEXANDER, Sea View Gardens, Gibson's Land- ing, near Vancouver, B. C., Can.....	1928
NININGER, PROF. HARVEY HARLOW, 1317 E. 18th Ave., Denver, Colo.....	1920
NOKES, DR. IRWIN DANA, 1120 Rives Strong Bldg., Los Angeles, Calif.....	1915
NORRIS, EDWARD, 301 W. Springfield Ave., Philadelphia, Pa.....	1916
NORTH, GEORGE BELFORD, 34 West 53rd St., New York, N. Y.....	1928
NOVAK, FRANK, Birdcraft Sanctuary, Unquowa Rd., Fairfield, Conn.....	1930
OASTLER, DR. FRANK RICHARD, 1192 Park Ave., New York, N. Y.....	1930
O'BRIEN, CHARLES EDWARD, Am. Mus. Nat. Hist., New York, N. Y....	1929
O'BRIEN, JOHN ERWIN, JR., 2400 16th St., N. W., Washington, D. C....	1926
*O'CONOR, JOHN CHRISTOPHER, 24 E. 33rd St., New York, N. Y.....	1921
ODELL, THEODORE TELLAFSEN, 328 Pulteney St., Geneva, N. Y.....	1926
OEHSER, PAUL HENRY, Biological Survey, Washington, D. C.....	1925
OGBURN, CHARLTON, JR., 44 Randolph Hall, Cambridge, Mass.....	1929
O'LEARY, ARTHUR LAWRENCE, 1033 Lawrence St., N. E., Washington, D. C.....	1926
OLENCHAK, THOMAS R., 815 Brook St., Scranton, Pa.....	1927
OLIVER, MRS. JAMES CONNOR, 529 Moreland Ave., N. E., Atlanta, Ga.....	1928
OLIVIER, JOHANNES, Passarstraat 149, Meester Cornelis, Dutch East Indies.....	1930
OLSEN, HUMPHREY ADONIRAM, 172 Manchester St., Battle Creek, Mich.....	1930
OLSEN, RICHARD ELLSWORTH, 1120 E. Ann St., Ann Arbor, Mich.....	1930
ORMSBY, MRS. OLIVER SAMUEL, 5756 Blackstone Ave., Chicago, Ill....	1925
ORTMAN, ENID D., 4660 S. Franklin St., Englewood Sta., Denver, Colo.....	1929
OSBORN, PROF. HENRY FAIRFIELD, Am. Mus. Nat. Hist., New York, N. Y.....	1919
OSBORN, MISS MARY ELIZABETH, Cushing House, Smith College, North- ampton, Mass.....	1929
OSBORNE, ARTHUR AUGUSTUS, 183 Lowell St., Peabody, Mass.....	1912
OSLER, HENRY S., 1 Rosedale Road, Toronto, Ont., Can.....	1920
OSTROM, FRANK HILTON, 21 Prince Rupert Apts., 585 O'Connor St., Ottawa, Ont., Can.....	1928
OTIS, MISS OLIVE, 81 Front St., Exeter, N. H.....	1926

OTTERSON, JOHN H., Room 5096, Dupont Bldg., Wilmington, Delaware	1930
OVER, WILLIAM HENRY, 125 Harvard St., N., Vermillion, S. Dak.	1921
OVERING, ROBERT, 1660 Park Rd., Washington, D. C.	1929
*OWEN, MISS JULIETTE AMELIA, 306 N. 9th St., St. Joseph, Mo.	1897
*PACK, ARTHUR NEWTON, 11 Morven St., Princeton, N. J.	1929
PACKARD, WINTHROP, 1442 Washington St., Canton, Mass.	1917
PAFF, WILLIAM ALFRED, 916 Paxinosa Ave., Easton, Pa.	1927
PAGET-WILKES, ARTHUR HAMILTON, Moroto, Karamoja, Uganda, British East Africa.	1929
**PAINE, AUGUSTUS GIBSON, JR., 31 E. 69th St., New York, N. Y.	1886
PAINE, JOHN BRYANT, Weston, Mass.	1922
PALAS, ARTHUR JULIUS, 663 49th St., Des Moines, Iowa.	1929
*PALEN, FREDERICK POMEROY, 1158 Fifth Ave., New York, N. Y.	1926
*PALMER, MISS ELIZABETH DAY, 1741 S. Harvard Blvd., Los Angeles, Calif.	1918
PALMER, DR. SAMUEL COPELAND, Swarthmore College, Swarthmore, Pa.	1899
PALMER, MRS. THEODORE SHERMAN, 1939 Biltmore St., N. W., Wash- ington, D. C.	1918
PANGBURN, CLIFFORD HAYES, Chappaqua, Westchester Co., N. Y.	1907
PARDEE, DR. LUCIUS CROCKER, Greenwood Inn, Evanston, Ill.	1926
*PARKER, EDWARD LUDLOW, Nashawtuc Road, Concord, Mass.	1916
PARKER, HARRY CLARENCE, Mus. Nat. Hist., 12 State St., Worcester, Mass.	1927
PARKER, HERBERT, South Lancaster, Mass.	1920
PARRY, EDWARD HICKS, Box 84, Wyncote, Pa.	1929
PATCH, DR. EDITH MARION, College Road, Orono, Maine.	1921
PATRICK, DR. LEON, Smith-Grote Bldg., Orange, Calif.	1930
PATTEN, DR. STEPHEN KERR, 141 Milk St., Boston, Mass.	1920
PATTERSON, JOHN ELLIOT, Pinehurst, Jackson Co., Ore.	1929
PAUL, LUCIUS H., 424 Carter St., Rochester, N. Y.	1908
PAUL, DR. ROBERT DORLAND, 1358 E. 47th St., Chicago, Ill.	1927
PEABODY, REV. PUTNAM BURTON, 2011 Park Ave., Topeka, Kans.	1903
PEAKE, ARTHUR LIONEL, Nanaimo, B. C., Can.	1927
PEARSE, SPENCER, Ravenscrag, Sask., Can.	1926
PEARSE, THEED, P. O. Box 158, Courtenay, Vancouver Id., B. C., Can.	1926
PEASE, MISS FLORENCE MABEL, Box 265, Conway, Mass.	1922
PEBBLES, MRS. ANTOINETTE MARIE, Woodsville, N. H.	1930
PELLEW, MISS MARION JAY, Box 455, Aiken, S. C.	1919
PELSE, JOHN ELMER, 72 Clinton Ave., Clifton, N. J.	1930
PEMBERTON, JOHN ROY, 525 N. Palm Drive, Beverly Hills, Calif.	1918
PEPPER, DR. WILLIAM, Melrose Park, Philadelphia, Pa.	1911
PEPPER, WILLIAM, JR., 110 Glenview Ave., Wyncote, Pa.	1930
PERCY, MISS MARY LOUISE, 302 Cabell St., Lynchburg, Va.	1930
PERINE, KEBLE BARNUM, City Hall, West Newton, Mass.	1917

- *PERKINS, DR. ANNE ELIZABETH, Gowanda State Hospital, Helmuth, N. Y. 1917
- PERKINS, DR. EDWARD HENRY, Box 52, Waterville, Maine. 1920
- PERKINS, DR. GEORGE HENRY, Univ. of Vt., Burlington, Vt. 1912
- PERKINS, SAMUEL ELLIOTT, THIRD, 709 Inland Trust Bldg., Indianapolis, Ind. 1923
- PERRY, EDGAR LE ROY, State Game and Fish Warden, Santa Fe., N. M. 1928
- PERRY, GEORGE LEWIS, 68 Thurston St., Winter Hill, Somerville, Mass. 1923
- PERRY, JOHN ELMER, 627 West 3rd St., Erie, Pa. 1924
- PETER, JULIUS CHRISTIAN, Detroit Trust Co., Detroit, Mich. 1921
- PETERS, ALBERT S., Donnybrook, N. Dak. 1908
- PETERS, HAROLD SEYMOUR, Bur. Entomology, Dept. Agr., Washington, D. C. 1924
- PETERS, WILLIAM YORK, 143 Bay State Road, Boston, Mass. 1925
- PETERSON, ALFRED, Box 211, Pipestone, Minn. 1920
- PETERSON, ROGER TORREY, 1 Argyle Road, Scarsdale, N. Y. 1929
- PETRIE, DR. RAYMOND CHESEBROUGH, 5 West Main St., Johnstown, N. Y. 1925
- PETTINGILL, OLIN SEWALL, JR., Maple St., Middleton, Mass. 1930
- PEYTON, LAWRENCE GORHAM, R. F. D. 2, Fillmore, Ventura Co., Calif. 1924
- PFEIFFER, EGBERT WHEELER, 4600 Palisade Ave., New York, N. Y. 1930
- PHELPS, FRANK MILLS, 130 Cedar St., Elyria, Ohio. 1912
- PHELPS, MRS. JOHN WOLCOTT, Box 158, Northfield, Mass. 1899
- *PHILIPP, PHILIP BARNARD, 220 Broadway, New York, N. Y. 1907
- **PHILLIPS, PROF. ALEXANDER HAMILTON, 54 Hodge Road, Princeton, N. J. 1891
- PHILLIPS, CHARLES LINCOLN, 5 West Weir St., Taunton, Mass. 1912
- *PHILLIPS, JOHN MACFARLANE, 2227 Jane St., Pittsburgh, Pa. 1920
- PICKENS, ANDREW LEE, 4029 Life Sci. Bldg., Univ. Calif., Berkeley, Calif. 1925
- PICKWELL, GAYLE BENJAMIN, Natural Science Dept., State Teachers Coll., San Jose, Calif. 1924
- PIERCE, FRED JOHN, Winthrop, Iowa. 1930
- PIERCE, WRIGHT McEWEN, Box 343, Claremont, Calif. 1918
- PIGGOT, JOHN WHITMAN, Bridgetown, N. S., Can. 1927
- *PIKE, EUGENE ROCKWELL, 2430 Lake View Ave., Chicago, Ill. 1926
- *PINCHOT, HON. GIFFORD, Executive Mansion, Harrisburg, Pa. 1910
- PIRNIE, DR. MILES DAVID, Dept. of Conservation, Lansing, Mich. 1919
- PITMAN, CAPT. CHARLES ROBERT SENHOUSE, Game Warden, Entebbe, Uganda, East Africa. 1928
- PLATH, KARL, 2847 Giddings St., Chicago, Ill. 1925
- PLATON, ALEXANDER JOSEPH, 51 Crofton Road, Plaistow, London E. 13, England. 1930
- PLATT, CHARLES, LAVEROCK, 1681 E. Willow Grove Ave., Chestnut Hill, Philadelphia, Pa. 1930

PLATT, HON. EDMUND, 136 Hampton Rd., Garden City, L. I., N. Y.	1917
PODLASKI, STANLEY, 20 Milbre St., Kingston P. O., Pa.	1930
POE, MISS MARGARETTA, Earl Court, St. Paul & Preston Sts., Baltimore, Md.	1899
POMEROY, FRED ELMER, Dept. Biology, Bates College, Lewiston, Maine.	1920
PÖNITZ, STUDIENRAT HANS, Frankfurterstr. 2, Leipzig, Germany.	1929
POOLE, EARL LINCOLN, Public Museum, Reading, Pa.	1916
POPENOE, CHARLES HOLCOMB, Bur. Entomology, Dept. Agr., Washington, D. C.	1927
PORTER, JAMES VANN, Box 266, Glenwood, Minn.	1926
PORTER, LOUIS HOPKINS, Noroton Hill, Stamford, Conn.	1893
PORTER, SYDNEY, The White Gates, Stenson Road, Derby, England.	1930
PORTER, WILLARD BROWN, 5 Lee St., Salem, Mass.	1922
POST, WILLIAM STONE, 101 Park Ave., New York, N. Y.	1911
POTTER, MISS JESSICA A., 1118 Santee St., Los Angeles, Calif.	1924
POTTER, JULIAN KENT, 437 Park Ave., Collingswood, N. J.	1912
POTTER, LAURENCE BEDFORD, Gower Ranch, East End, Sask., Can.	1919
POTTER, LOUIS HENRY, R. F. D. 2, West Rutland, Vt.	1922
POTTS, FREDERICK ANDREW, Fortuna, Porto Rico.	1922
POTTS, THOMAS CHARLES, East Erie Ave. & D St., Philadelphia, Pa.	1923
POUGH, RICHARD HOOPER, 4 Lenox Place, St. Louis, Mo.	1922
PRAEGER, WILLIAM EMILIUS, Kalamazoo College, Kalamazoo, Mich.	1892
PRATT, GEORGE DUPONT, 26 Broadway, New York, N. Y.	1917
PRENTISS, REV. WILLIAM CARLOS, 39 Gilbert St., North Brookfield, Mass.	1921
PRESCOTT, MRS. SAMUEL CATE, 249 Tappan St., Brookline, Mass.	1922
PRICE, DR. LIGON, Dunmore, W. Va.	1913
PRIEST, CAPT. CECIL DAMER, Mashumba's P. O., Wadza, Marandella, S. Rhodesia, S. Africa.	1927
PRIEST, GEORGE HEYWOOD, 33 North Ash St., Brockton, Mass.	1922
PRILL, DR. ALBERT G., Scio, Oregon.	1921
PRITCHARD, DR. MYRON THOMAS, 215 Hollywood St., Peninsula Sta., Daytona Beach, Fla.	1929
*PROCTOR, MRS. LILLIAN SANFORD, New Ashford, Lanesboro P. O., Mass.	1928
PROCTOR, GEORGE NEWTON, 37 Cabot St., Winchester, Boston, Mass.	1919
*PROCTOR, WILLIAM, 30 East 42d St., New York, N. Y.	1928
PUMYEA, NELSON DEWITT, Mount Holly, N. J.	1928
PURDIE, MISS EVELYN, 383 Harvard St., Cambridge, Mass.	1921
PURDY, WILLIAM BROWN, Box 114, Milford, Oakland Co., Mich.	1921
QUARLES, EMMET AUGUSTUS, 139 E. 7th St., Plainfield, N. J.	1918
QUATTLEBAUM, REV. WILLIAM DANIEL, 1925 Paloma St., Pasadena, Calif.	1924
QUILLIN, ROY WILLIAM, 422 W. King's Highway, San Antonio, Texas.	1920
QUINDRY, LELAND ARKELL, 4614 N. Paulina St., Chicago, Ill.	1929

- RACEY, KENNETH, 3262 First Ave., W. Vancouver, B. C., Can.....1921
 RALFE, PILCHER GEORGE, Castletown, Isle of Man, England.....1928
 RANSOM, WEBSTER HAMILTON, 708 W. 20th Ave., Spokane, Wash.....1927
 RAFF, FREDERICK WILLIAM, 125 E. Prairie St., Vicksburg, Mich.....1922
 RAYMOND, OLNEY MARTIN, 953 President St., Brooklyn, N. Y.....1930
 REAGH, DR. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass...1896
 REATH, BENJAMIN BRANNAN 2d, Merion Sta., Montgomery Co., Pa...1928
 REDICK, LEONARD LeROY, Newington Junction, Conn.....1924
 REDINGTON, PAUL GOODWIN, Falls Church, Va.....1927
 REED, MRS. CARLOS ISAAC, 738 S. Highland Ave., Oak Park, Ill.....1920
 REED, MRS. CHARLES KELLER, 11 State St., Worcester, Mass.....1925
 REED, MISS CLARA EVERETT, Brookfield, Mass.....1919
 REESE, MRS. ROBERT MILLER, 517 Cameron St., Alexandria, Va....1920
 REGAR, GEORGE BERTRAM, Copewell House, Rydal, Pa.....1923
 REGAR, HOWARD SEVERN, Summit Drive, Anniston, Ala.....1916
 REHN, JAMES ABRAHAM GARFIELD, Acad. Nat. Sci., Philadelphia, Pa...1901
 REID, MRS. BRUCE, Gulf Refinery, Port Arthur, Texas.....1918
 REID, RUSSELL, 811 12th St., Bismarck, N. Dak.....1919
 REIS, REV. JACOB ANTHONY, JR., Kribi, Efulan, Cameroun, French
 West Africa.....1921
 REYNARD, CHARLES ROBERT, 1418 N. 6th Ave., Tucson, Ariz.....1929
 RHOADS, CHARLES JAMES, Bryn Mawr, Pa.....1895
 **RHOADS, SAMUEL NICHOLSON, 81 Haddon Ave., Haddonfield, N. J...1885
 RICE, JAMES HENRY, JR., Brick House Plantation, Wiggins, S. C....1910
 RICE, WARD JENNINGS, 5250 N. Pennsylvania St., Indianapolis, Ind...1913
 RICH, MISS NELLIE VANDERVOORST, 36 Taber St., Springfield Mass..1923
 RICHARDS, MISS HARRIET ELIZA, 36 Longwood Ave., Brookline, Mass..1900
 RICHARDS, MISS RUTH, Clifton Sta., Fairfax Co., Va.....1921
 RICHARDSON, CARL, Altamont Auto Camp, Klamath Falls, Ore.....1929
 RICHARDSON, FRIDRICK WILLIAM LEOPOLD, JR., Charles River, Mass..1921
 RICHARDSON, RUSSELL, JR., Newton, Bucks Co., Pa.....1924
 RICHARDSON, WILLIAM DERRICK, 4215 Prairie Ave., Chicago, Ill....1917
 *RICHARDSON, MRS. WILLIAM DERRICK, 4215 Prairie Ave., Chicago,
 Ill.....1925
 RICHARDSON, DR. WYMAN, 229 Dudley Road, Newton Centre, Mass..1920
 RIDDLE, SAMUEL EARL, The Texas Co., Oklahoma City, Okla.....1928
 **RIDGWAY, JOHN LIVZEY, 501 Fairmount, St. Glendale, Calif.....1890
 **RIKER, CLARENCE BAYLEY, 432 Scotland Road, South Orange, N. J.1885
 RIPLEY, R. WOLCOTT, 901 Lexington Ave., New York, N. Y.....1928
 RISSER, ALDEN FAIRCHILD, 1012 Laurel Ave., St. Paul, Minn.....1929
 RITTER, WILLIAM CLARKE, 214 Thurston Ave., Ithaca, N. Y.....1929
 RITTER, DR. WILLIAM EMERSON, Univ. California, Berkeley, Calif..1929
 *ROADS, MISS KATIE MYRA, 463 Vine St., Hillsboro, Ohio.....1929
 ROBB, WALLACE HAVELOCK, Abbey Dawn, Rt. 1, Kingston, Ont., Can.1921
 ROBERTS, HOWARD RADCLYFFE, Villa Nova, Pa.....1924
 ROBERTS, WILLIAM ELY, 207 McKinley Ave., Lansdowne, Pa.....1902

- ROBERTSON, HOWARD, 157 S. Wilton Drive, Los Angeles, Calif..... 1911
- ROBERTSON, JOHN MCBRIAR, Box 121, Buena Park, Orange Co., Calif. 1920
- ROBINSON, ANTHONY WAYNE, 780 College Ave., Haverford, Pa..... 1903
- ROBINSON, HERBERT WILLIAM, 37 West Road, Lancaster, England... 1928
- ROBINSON, MISS RACHEL GORGAS, 780 College Ave., Haverford, Pa... 1928
- RODOCK, ROY EDGAR, Sci. Dept., State Normal School, Lewiston,
Idaho..... 1929
- ROE, MISS ELIZABETH FRANCES, 5923 Euclid Ave., Cleveland, Ohio.. 1929
- ROGERS, BERNARD FOWLER, JR., 1005 Maplewood Road, Lake Forest,
Ill..... 1930
- ROGERS, MISS MABEL FLORENCE, 11 Fourth Ave., Ottawa, Ont., Can. 1921
- ROGERS, REV. WALLACE, 170 Waverly Way, N. E., Atlanta, Ga.... 1921
- ROLAND, CONRAD KESSLER, Huntingdon Valley, Pa..... 1917
- ROLLINS, HARRY LEIGHTON, 646 Washington St., Wellesley, Mass.... 1924
- ROOSEVELT, HON. FRANKLIN DELANO, Executive Mansion, Albany,
N. Y..... 1896
- RORIMER, MRS. JOHN MORRIS, 1725 East 115th St., Cleveland, Ohio.. 1927
- ROSE, FRANK HUBERT, Montana Nat. Bison Range, Moiese, Mont.. 1927
- ROSE, GEORGE CHILDS, 178 Second St., Mineola, N. Y..... 1920
- ROSENE, WALTER MELVIN, P. O. Box 22, Ogden, Iowa..... 1928
- ROSIER, EUGENE, Petit Saconnex, Geneva, Switzerland..... 1927
- ROSS, MISS EDNA GRACE, Pakenham, Ont., Can..... 1927
- ROSS, GEORGE HERBERT, 23 West St., Rutland, Vt..... 1904
- ROSS, LAURENCE STRAUB, 510 E. Second St., Moorestown, N. J..... 1925
- ROSS, DR. LUCRETIVS HENRY, 507 Main St., Bennington, Vt..... 1912
- ROSS, MISS MARJORIE RUTH, R. R. 5, Fairmont, W. Va..... 1928
- ROSS, REUBEN JAMES, 63 Wall St., New York, N. Y..... 1922
- ROSS, ROLAND CASE, 1820 Bushnell Ave., South Pasadena, Calif.... 1925
- ROSSIGNOL, GILBERT RICE, 1321 East 33d St., Savannah, Ga..... 1928
- ROTHROCK, BOYD PACKER, 276 Briggs St., Harrisburg, Pa..... 1925
- ROWLEY, JOHN STUART, 403 South First St., Alhambra, Calif..... 1930
- ROYALL, JORDAN BROOKS, Tallahassee, Fla..... 1928
- RUBY, GEORGE DALLAS, 520 Clarendon St., Syracuse, N. Y..... 1928
- RUGG, HAROLD GODDARD, Dartmouth College, Hanover, N. H..... 1919
- *RUMSEY, MRS. MARY HARRIMAN, 136 E. 79th St., New York, N. Y. 1925
- RUPPERT, FRANK CULVER, 2280 W. 20th St., Los Angeles, Calif..... 1927
- RUSSELL, JOHN WILLIAM, 26 Osgood Ave., Manton, R. I..... 1922
- RUST, HENRY JUDSON, Coeur d'Alene, Idaho..... 1918
- RUTTER, RUSSELL JAMES, c/o Brodie Club, 253 Bloor St., W., Toronto
5, Ont., Can..... 1928
- **SAGE, HENRY MANNING, Menands Road, Albany, N. Y..... 1885
- SAGE, MRS. MARY SEARL, 1974 Broadway, New York, N. Y..... 1919
- SALOMONSEN, FINN, Slotsholmsgade 16, Copenhagen, Denmark..... 1927
- SAMPSON, WALTER BEHRNARD, 1005 N. San Joaquin St., Stockton,
Calif..... 1922
- SAMPSON, WILLIAM FRANCIS, 215 Market St., San Francisco, Calif.... 1929

- SANBORN, COLIN CAMPBELL, Field Museum, Chicago, Ill. 1911
- *SANFORD, DR. LEONARD CUTLER, 216 Crown St., New Haven, Conn. 1919
- SANSOM, NORMAN BETHUNE, 110 Muskrat St., Banff, Alta., Can. 1928
- SANTENS, REMI HENRI, Carnegie Museum, Pittsburgh, Pa. 1918
- SARGENT, WILLIAM DUNLAP, 404 W. 116th St., New York, N. Y. 1930
- SASS, HERBERT RAVENEL, 23 Legare St., Charleston, S. C. 1923
- SATTERTHWAIT, MRS. ALFRED FELLEBERG, 118 Waverly Place, Webster Groves, Mo. 1920
- SAUNDERS, FREDERICK ALBERT, 10 Chauncey St., Cambridge 38, Mass. 1923
- SAUNDERS, GEORGE BRADFORD, JR., 1110 East 11th St., Oklahoma City, Okla. 1925
- SAVAGE, HENRY LYTTLETON, 622 E. Gravers Lane, Chestnut Hill, Philadelphia, Pa. 1926
- SAVAGE, JAMES, 1048 Ellicott Sq., Buffalo, N. Y. 1895
- SAVARY, WALTER BURGESS, Wareham, Mass. 1922
- SAVIN, WILLIAM MORGAN, 24 West 89th St., New York, N. Y. 1921
- SAWYER, EDMUND JOSEPH, 119 State St., Pontiac, Mich. 1930
- SCHAEFER, OSCAR FREDERICK, 724 Woodbine St., Rochester, N. Y. 1916
- SCHAFER, JOHN JACOB, R. R. 2, Port Byron, Ill. 1918
- SCHANTZ, ORPHEUS MOYER, 3219 Maple Ave., Berwyn, Ill. 1919
- SCHEAR, PROF. EDWARD WALDO EMERSON, 107 W. Park St., Westerville, Ohio. 1922
- SCHELL, JOHN WILLIS, 129 W. Sharpneck St., Mt. Airy, Philadelphia, Pa. 1923
- SCHIERMANN, GOTTFRIED, Bergmannstrasse 104, Berlin S. W. 29, Germany. 1928
- SCHMIDT, MISS CLAUDIA, 39 Ely Ave., W. Springfield, Mass. 1930
- SCHMIDT, EUGENE WILLIAM, 494 Church St., New Britain, Conn. 1927
- SCHOEDINGER, GEORGE RICHARD, JR., 78 Auburn Ave., Columbus, Ohio. 1926
- SCHONNEGEL, JULIAN ELIOT, 92 Morningside Ave. E., New York, N. Y. 1918
- SCHORGER, ARLIE WILLIAM, 2021 Kendall Ave., Madison, Wis. 1913
- SCHRENCK, DR. HERMANN VON, Tower Grove and Flad Aves., St. Louis, Mo. 1919
- SCHROEDER, MRS ADELE PARROTT, White River, S. Dak. 1920
- SCHWARZ, HERBERT FERLANDO, Am. Mus. Nat. Hist., New York, N. Y. 1925
- SCHWARZ, MAX DIEDRICH, 625 Tuxedo Blvd., Webster Groves, Mo. 1928
- SCOFIELD, JOHN KENDRICK, 1511 30th St., N. W., Washington, D. C. 1927
- SCOTT, CHARLES HENRY, JR., 1100 Provident Trust Bldg., Philadelphia, Pa. 1926
- SCOVILLE, GURDON TRUMBULL, Va. Theological Seminary, Alexandria, Va. 1925
- SCOVILLE, SAMUEL, JR., 1307 Penn Bldg., Philadelphia, Pa. 1916
- SEARS, MISS ANNIE LYMAN, 85 Mt. Vernon St., Boston, Mass. 1924
- SEELEY, GEORGE HENRY, Box 106, Stockbridge, Mass. 1920

SEFTON, JOSEPH WELLER, JR., 638 F St., San Diego, Calif.....	1922
SEIPLE, STANLEY JULIUS, 293 Clinton St., Greenville, Pa.....	1927
*SEMPLE, JOHN BONNER, Sewickley, Pa.....	1924
*SERPELL, GOLDSBOROUGH, Seaboard Nat. Bank, Norfolk, Va.....	1926
SERRILL, WILLIAM JONES, Haverford, Pa.....	1916
SHADLE, ALBERT RAY, 143 University Ave., Buffalo, N. Y.....	1928
SHANNON, WAYLAND EVANS, 1260 Talbot St., Jacksonville, Fla.....	1929
SHAVER, PROF. JESSE MILTON, Peabody College, Nashville, Tenn....	1924
*SHAW, HENRY SOUTHWORTH, 136 High St., Exeter, N. H.....	1916
SHAW, TSEN HWANG, Dept. Biol., Tsing Hua College, Peking, China..	1922
SHAW, DR. WILLIAM THOMAS, 1002 Cambridge Ave., Fresno, Calif....	1908
SHEARER, DR. AMON ROBERT, Mont Belvieu, Chambers Co., Texas....	1905
SHEFFLER, WILLIAM JAMES, 4731 Angeles Vista Blvd., Los Angeles, Calif.....	1928
SHELDON, MISS CAROLYN, 196 School St., Milton, Mass.....	1930
SHELDON, HENRY ERNEST, 21 Norwood Ave., Norwalk, Ohio.....	1926
SHELLY, LEWIS ORMAN, P. O. Box 22, East Westmoreland, N. H....	1925
SHEPPARD, ROY WATSON, 448 Philip St., Niagara Falls, Ont., Can....	1928
SHERILL, WILLIAM ENOS, Haskell, Texas.....	1922
SHERWOOD, JOHN WILLITS, P. O. Box 264, Salinas, Calif.....	1929
SHERWOOD, ROBERT COVELL, 38 Vassar St., Springfield, Mass.....	1921
SHIPMAN, CHARLES MELVILLE, 114 Ridge Road, Willoughby, Ohio....	1925
SHIRLEY, GARLAND LATIMER, Dayton, Va.....	1927
SHOEMAKER, CLARENCE RAYMOND, 3116 P St., Washington, D. C....	1910
SHOEMAKER, HENRY WHARTON, Room 409, 71 Broadway, New York, N. Y.....	1912
SHOFFNER, CHARLES PENNYPACKER, Apt. D, 301 Minerva Court, Upper Darby, Pa.....	1915
SILLEM, DR. JOHN GOTTLIEB, Legation des Pays Bas, Via Piasello 15, Rome, Italy.....	1928
SILLIMAN, OSCAR PERRY, c/o Mitchell-Silliman Co., Salinas, Calif....	1915
SIMMONS, GEORGE FINLAY II, 2903 Edgehill Road, Cleveland Heights, Ohio.....	1927
SIMONS, EDWARD ALEXANDER, 4 Lamboll St., Charleston, S. C.....	1928
SIMONS, JOSEPH, 5555 Everett Ave., Chicago, Ill.....	1929
SIMPSON, RALPH BERNARD, 128 Biddle St., Warren, Pa.....	1928
SKEELE, HENRY BLODGET, 116 W. Gaston St., Savannah, Ga.....	1926
SKILLEN, DONALD RALPH, 317 S. 46th St., Philadelphia, Pa.....	1929
SKINNER, MILTON PHILLO, 5840 John Ave., Long Beach, Calif.....	1916
SKUTCH, ALEXANDER FRANK, 3509 Clark's Lane, Baltimore, Md.....	1930
SLADEN, MAJOR ALEXANDER GEORGE LAMBERT, Kingswood House, The Lee, Gt. Missenden, Bucks, England.....	1927
SLAWSON, DR. EDWARD DOUGLASS, 708 N. Sheridan St., Bay City, Mich.....	1921
SLOCUM, HARRY SPENCER, 4 Whitethorn Lane, Bluefield, W. Va.....	1928

SMALL, COL. WILLIAM MELVILLE, 601 Upland Drive, San Francisco, Calif.....	1924
SMILEY, ALBERT KEITH, JR., Mohonk Lake, Ulster Co., N. Y.....	1928
SMILEY, DANIEL, JR., Mohonk Lake, Ulster Co., N. Y.....	1928
SMITH, AUSTIN PAUL, Apt. 412, San Jose, Costa Rica.....	1911
SMITH, CHARLES PIPER, 354 S. 10th St., San Jose, Calif.....	1929
SMITH, EARL R., P. O. Box 641, New Orleans, La.....	1924
SMITH, MISS EMILY, Route 1, Box 93, Los Gatos, Calif.....	1929
SMITH, PROF. FRANK, 79 Fayette St., Hillsdale, Mich.....	1909
SMITH, FRANK RUSH, Fredericktown, Pa.....	1926
SMITH, HERBERT ALLYN, 2941 East 29th St., Kansas City, Mo.....	1928
SMITH, MRS. HERBERT WATSON, 86 S. Bay Ave., Islip, Suffolk Co., N. Y.....	1925
**SMITH, HORACE GARDNER, 2918 Lafayette St., Denver, Colo.....	1888
**SMITH, DR. HUGH McCORMICK, 1209 M St., N. W., Washington, D. C.....	1886
SMITH, JESSE LOW, 334 Vine Ave., Highland Park, Ill.....	1920
SMITH, LEWIS MACCUEEN, 218 W. Chelton Ave., Germantown, Philadelphia, Pa.....	1927
SMITH, LESTER WHEADON, Park Manor, Babson Park, Mass.....	1916
SMITH, LUTHER ELY, 1554 Telephone Bldg., St. Louis, Mo.....	1928
SMITH, NAPIER, Bank of Montreal, Montreal West, Que., Can.....	1915
SMITH, REV. O(NNIE) WARREN, 120 Church St., Oconomowoc, Wis.....	1924
SMITH, ROY HARMON, 183 N. Prospect St., Kent, Ohio.....	1922
SMITH, MRS. WALLIS CRAIG, 525 N. Mich. Ave., Saginaw, W. S., Mich.....	1916
SMITH, WENDELL PHILLIPS, Wells River, Vt.....	1919
SMOOKER, GEORGE DOUGLAS, Mt. Hope, St. Joseph, Trinidad, B. W. I.....	1926
SMYTH, ELLISON ADGER, JR., Rt. 2, Box 166, Salem, Va.....	1892
SMYTH, DR. THOMAS, State Teachers College, Indiana, Pa.....	1921
SNOW, MISS GRACE MARION, 39 Forest St., Winchester, Mass.....	1922
SNYDER, MISS DOROTHY EASTMAN, 133 Columbus St., Elyria, Ohio.....	1923
SNYDER, WILL EDWIN, 309 DeClarke St., Beaver Dam, Wis.....	1895
SOPER, JOSEPH DEWEY, N. W. Terr. & Yukon Br. Dept Interior, Ottawa, Ont., Can.....	1923
SOUTHWICK, MRS. MARY KATHRYN, Kimball Bird Sanctuary, R. F. D., Bradford, R. I.....	1930
SPAULDING, MISS NINA GERTRUDE, Jaffrey, N. H.....	1922
SPEAR, JAMES, JR., Wallingford, Pa.....	1926
SPELMAN, HENRY MUNSON, 48 Brewster St., Cambridge, Mass.....	1911
SPERRY, CHARLES CALVERT, Biological Survey, Washington, D. C.....	1920
*SPINGARN, EDWARD DAVID WOODBERRY, Amentia, N. Y.....	1924
SPOFFORD, WALTER RICHARDSON, 2d, Highland Road, Berlin, Mass.....	1927
SPRAGUE, ISAAC, Wellesley Hills, Mass.....	1920
SPROT, GEORGE DOVETON, R. M. D. Cobble Hill, Vancouver Island, B. C., Can.....	1923
SPRUANCE, WILLIAM CORBIT, 2507 W. 17th St., Wilmington, Del.....	1923

SPURGEON, GEORGE WRAY, JR., 200 Burns St., Forest Hills, L. I., N. Y.	1929
SQUIRES, KARL, P. O. Box 1264, Miami, Fla.	1927
SSEREBROWSKY, DR. P., Zool. Museum, Acad. Science, Leningrad, U. S. S. R.	1930
STACK, PROF. JOSEPH WILLIAM, 1028 Chesterfield Parkway, East Lansing, Mich.	1929
STANFORD, DR. JOSEPH SEDLEY, 445 N. 7th St. E., Logan, Utah	1929
STANLEY, DR. ARTHUR CAMP, The Farragut, Washington, D. C.	1925
STEBBINS, MISS FANNIE ADELL, 31 Ely Ave., West Springfield, Mass.	1922
STEIN, GEORG, Post Pulverkrug, Kr. Westernberg, Leipzig, Germany	1928
STEPHENSON, MRS. JESSE, Monte Vista, Colo.	1918
STETSON, SERENO, 511 W. 113th St., New York, N. Y.	1923
STEVENSON, JAMES OSBORNE, 4213 Dundee Drive, Los Angeles, Calif.	1926
STEWART, JAMES BURCHARD, Roselle, N. J.	1921
STEWART, PAUL ALVA, R. D. 1, Leetonia, Ohio	1928
STICKNEY, GARDNER PERRY, 864 Summit Ave., Milwaukee, Wis.	1923
STILES, EDGAR CRANE, 345 Main St., West Haven, Conn.	1907
STOCKMANN, STEN, Skeppanegatan 6, Helsingfors, Finland	1930
STONE, HARRY HERBERT, Jr., Sturbridge, Mass.	1919
STONE, ROBERT GREGG, 575 Boylston St., Brookline, Mass.	1922
STONE, MRS. WITMER, 452 Church Lane, Germantown, Phila., Pa.	1920
STONER, DR. DAYTON, U. S. Entomological Lab., Sanford, Fla.	1922
STONER, EMERSON AUSTIN, Box 444, Benicia, Calif.	1922
STORROW, MRS. EDWARD CABOT, South St., Needham, Mass.	1925
STOVER, MISS ESTHER ELLA, 527 Church St., Ann Arbor, Mich.	1929
STRABALA, LONY BALTHASAR, Box 129, Leetonia, Ohio	1925
STRANG, MISS ETHEL, 23 Warwick Place, Leamington Spa, Warwick- shire, England	1930
STRECKER, JOHN KERN, Baylor University, Waco, Texas	1925
STREIT, RAYMOND E., 50 Broadway, New York, N. Y.	1929
STRONG, WILLIAM ABNER, 247 Grand Ave., San Jose, Calif.	1924
STRUNK, WILLIAM LEONARD, Decorah, Iowa	1930
STUART, EDWARD TOBEY, JR., 2133 St. James Place, Philadelphia, Pa.	1925
STUBBS, ARTHUR PERCIVAL, 1 Addison Ave., Lynn, Mass.	1922
STURGE, MRS. EDGAR, 1620 Washington Ave., Scranton, Pa.	1927
STURGIS, MRS. SAMUEL DAVIS, 2219 California St., N. W., Washington, D. C.	1925
STURTEVANT, EDWARD, St. George's School, Newport, R. I.	1896
SUGDEN, MRS. ARTHUR WALES, 2044 Garden St., Santa Barbara, Calif.	1929
SUGDEN, DR. JOHN WILLIAM, 1743 Yale Ave., Salt Lake City, Utah	1927
SULLIVAN, WALTER FRANCIS, 351 Turk St., San Francisco, Calif.	1924
SUMNER, EUSTACE LOWELL, JR., Mus. Vert. Zool., Berkeley, Calif.	1926
SUMNER, FRANCIS HOLLY, 760 University Ave., Palo Alto, Calif.	1928
SUTHARD, JAMES GREGORY, c/o Pure Oil Co., 117 W. Austin Ave., Chicago, Ill.	1923

- SVIHLA, ARTHUR, State College, Pullman, Wash.....1925
 SWAIN, JOHN MERTON, 15 Pleasant St., Farmington, Maine.....1899
 SWALES, MRS. BRADSHAW HALL, 2921 Albemarle St., Washington,
 D. C.....1928
 SWANSON, GUSTAV ADOLPH, 3305 47th Ave., S., Minneapolis, Minn...1928
 SWEDENBORG, ERNIE DAVID, 4905 S. Vincent Ave., Minneapolis, Minn.1927
 SWOPE, DR. EUGENE, Roosevelt Bird Sanctuary, Oyster Bay, N. Y...1921
 TALBOT, LESTER RAYMOND, 8 Rustic Road, Melrose Highlands, Mass.1920
 TATNALL, SAMUEL ALSOP, 503 Hansberry St., Philadelphia, Pa.....1916
 TAVERNER, MISS IDA CLARE, 45 Leonard Ave., Ottawa, Ont., Can...1926
 TAVISTOCK, MARQUIS OF, Warblington House, Havant, Hants, Eng-
 land.....1928
 TAYLOR, ALEXANDER R., Cayce, S. C.....1907
 TAYLOR, HORACE, 294 Walnut St., Brookline, Mass.....1917
 TAYLOR, LAURENCE H., 135 Main St., Williamstown, Mass.....1928
 TAYLOR, LEWIS WALTER, Poultry Div., College Agriculture, Berkeley,
 Calif.....1925
 TAYLOR, LIONEL EDWARD, R. R. 1, Saanichton, B. C., Can.....1913
 TAYLOR, DR. WALTER PENN, 1746 E. 5th St., Tucson, Ariz.....1916
 TAYLOR, WARNER, 619 N. Frances St., Madison, Wis.....1916
 TEACHENOR, DIX, 1020 W. 61st St., Kansas City, Mo.....1919
 TEE-VAN, JOHN, 120 E. 75th St., New York, N. Y.....1921
 TERRILL, LEWIS McIVER, 24 Prince Arthur St., St Lambert, Que.,
 Can.....1907
 TERRY, DR. ROBERT JAMES, 5149 Westminster Place, St. Louis, Mo..1919
 TEST, PROF. LOUIS AGASSIZ, 511 Russell St., West Lafayette, Ind....1929
 THABES, MRS. JOHN ALOIS, SR., 417 Holly St., Brainerd, Minn.....1920
 THACKER, THOMAS LINDSAY, Hope, B. C., Can.....1928
 THOMAS, EDWARD SINCLAIR, 1116 Madison Ave., Columbus, Ohio....1922
 THOMAS, DR. HALL H., 211 Charles Bldg., Denver, Colo.....1929
 THOMAS, HENSEN HOFF, P. O. Box 625, Pomeroy, Ohio.....1930
 THOMAS, R. M., 298 Garry St., Winnipeg, Man., Can.....1922
 THOMPSON, JOHN WALCOTT, 527 East First South St., Salt Lake City,
 Utah.....1916
 THOMPSON, LOVELL, 136 Myrtle St., Boston, Mass.....1923
 *THORNE, MRS. WILLIAM VAN SCHOONHOVEN, 810 5th Ave., New York,
 N. Y.....1925
 THOWLESS, HERBERT LANDO, 765 Broad St., Newark, N. J.....1919
 TIJMSTRA, GERHARDUS JACOBUS, Daal en Bergschelaan 68, The Hague,
 Holland.....1929
 TILLISCH, MISS MARY AGNES, 3205 17th Ave., S., Minneapolis, Minn.1922
 TILNEY, MISS MARY GARNER, Tranquillity, Route 2, Mobile, Ala....1929
 TIMBRELL, MRS. ESTHER HARDING, 30 W. Passaic Ave., Rutherford,
 N. J.....1930
 TINDALL, CHARLES WALTER, 912 N. Noland St., Independence, Mo...1919
 TINKER, ALMERIN DAVID, 519 Oswego St., Ann Arbor, Mich.....1907

TINKER, EDWARD RICHMOND, 711 5th Ave., New York, N. Y.....	1929
TINKHAM, ERNEST ROBERT, P. O. Box 111, Presidio, Texas.....	1929
TOLFREE, EDWARD ROGERS, 25 W. 45th St., New York, N. Y.....	1921
TOLMAN, RINKE, Nieuwe Weg 115, Soest, Holland.....	1928
TOMKINS, IVAN REXFORD, U. S. Engineer Dept., Savannah, Ga.....	1928
TOMLIN, DR. FRANCIS HENRY, 2 West Main St., Haddonfield, N. J....	1927
TOMLINSON, IRVING CLINTON, 137 Marlborough St., Boston, Mass...	1920
TOMLINSON, MRS. SUSIE, 506 Newport Ave., Long Beach, Calif.....	1929
*TORREY, DR. HENRY NORTON, 575 Lake Shore Road, Grosse Pointe, Detroit, Mich.....	1927
TOWNE, DR. SOLON RODNEY, 1502 N. 54th St., Omaha, Nebr.....	1919
TOWNSHEND, HENRY HOTCHKISS, 35 Hillhouse Ave., New Haven, Conn.....	1915
TRAEGER, JOHN HECKEWELDER, 79 W. Market St., Bethlehem, Pa....	1926
TRAUTMAN, MILTON BERNHARD, 618 S. 5th St., Columbus, Ohio.....	1924
TREGANZA, ALBERTO OWEN, P. O. Box 104, Lemon Grove, San Diego Co., Calif.....	1906
TREVOR, Frank Wilson, 132 Delaware St., Syracuse, N. Y.....	1928
TROST, HENRY, 475 29th St., San Francisco, Calif.....	1930
TROTTER, WILLIAM HENRY, 36 N. Front St., Philadelphia, Pa.....	1899
TRUESDELL, JOHN FESSENDEN, 6310 Franklin Circle, Hollywood, Calif.	1918
TUCKER, CARLL, 733 Park Ave., New York, N. Y.....	1929
*TUCKER, MRS. CARLL, 733 Park Ave., New York, N. Y.....	1924
TUFTS, ROBIE WILFRID, Wolfville, Nova Scotia, Can.....	1919
TURNBULL, JAMES DOUGLAS, 2065 48th Ave., W. Vancouver, B. C., Can.....	1927
TURNBULL, WILLIAM, Far Hills, New Jersey.....	1929
TURRELL, LORING WATSON, Smithtown Branch, L. I., N. Y.....	1927
TURTLE, LANCELOT JAMES, Rosemont, Knock, Belfast, Ireland.....	1928
TUTTLE, HENRY CARLISLE, 525 Worcester St., Wellesley Hills, Mass..	1930
TUTTLE, HENRY EMERSON, 87 Ogden St., New Haven, Conn.....	1909
TUTTLE, NORRIS, County Line Road, Bryn Mawr, Pa.....	1926
TWITCHELL, ADAMS HOLLIS, Flat, Alaska.....	1918
TWOMEY, ARTHUR CORNELIUS, Camrose, Alberta, Can.....	1930
TYLER, JOHN GRIPPER, Box 173, Fresno, Calif.....	1912
TYRRELL, WILLIAM BRYANT, Cranbrook Mus., Bloomfield Hills, Mich.	1922
UHLER, FRANCIS MOREY, Biol. Survey, Dept. Agr., Washington, D. C.	1924
*UNDERDOWN, CHARLES ELIOT, 8216 Manor Road, Elkins Park, Pa....	1923
*UNDERDOWN, HENRY TENER, 4601 Market St., Philadelphia, Pa.....	1921
UNGLISH, WILLIAM ELMER, 345 N. Rosanna St., Gilroy, Calif.....	1924
URNER, CHARLES ANDERSON, 596 Westminster Ave., Elizabeth, N. J..	1920
VAN BRUNT, MISS CARRIE, 212 Gates Ave., Brooklyn, N. Y.....	1925
VAN DER BRINK, FREDERICK HENDRIK, 19 Dillenburgstraat, Utrecht, Holland.....	1928
VANDERLIP, FRANK ARTHUR, Beachwood, Scarborough-on-Hudson, New York, N. Y.....	1929

- VAN DYKE, TERTIUS, Washington, Conn.....1930
 VAN HEYST, AUGUST FLORIS CHARLES ANDRÉ, "Marienhoven," Wyk
 by Duurstede, Holland.....1928
 VAN HYNING, DR. THOMPSON, State Museum, Univ. Florida, Gaines-
 ville, Fla.....1926
 VAN MARLE, JOHANN GOTTLIEB, Beethovenstraat 65, Amsterdam,
 Holland.....1928
 VAN NAME, WILLARD GIBBS, Am. Mus. Nat. Hist., New York, N. Y....1900
 VAN SCHAICK, DR. JOHN, JR., 176 Newbury St., Boston, Mass.....1926
 VAN TIENHOVEN, DR. PIETER GERBRAND, c/o Nederlandse Vereenig-
 ing tot Bescherming van Vogels, Heerengracht 540, Amster-
 dam, Holland.....1928
 VAN TYNE, CLAUDE HALSTEAD II, 1942 Cambridge Road, Ann Arbor,
 Mich.....1925
 VARDELL, PROF. CHARLES GRAVES, JR., Salem College, Winston-Salem,
 N. C.....1929
 VARLEY, JAMES ARTHUR, 99 Glencairn Ave., Toronto, Ont., Can....1926
 VERNON, JOHN, R. R. 1, Box 264, S. Sheridan Road, Kenosha, Wis...1929
 VERWEY, JAN, Laboratory for Research of the Sea, Batavia, Dutch
 East Indies.....1928
 VESTAL, MRS. ROBERT, 1803 Lake Ave., Knoxville, Tenn.....1927
 VETTER, DR. CHARLES, 18 East 48th St., New York, N. Y.....1898
 VOGT, WILLIAM, 1 Pinecrest Drive, Hastings-on-Hudson, N. Y.....1928
 VAN BLOEKER, KARL H., Rt. 1, Box 295C, Gardena, Calif.....1926
 VORHIES, DR. CHARLES TAYLOR, Univ. Ariz., Tucson, Ariz.....1918
 VOSBURG, PAUL SPRAGUE, Room 381, City Hall, Philadelphia, Pa....1927
 WADE, JOSEPH SANFORD, Bur. Entomology, Dept. Agriculture, Wash-
 ington, D. C.....1929
 WALCOTT, CHARLES FOLSOM, 77 Sparks St., Cambridge, Mass.....1923
 *WALCOTT, HON. FREDERIC COLLIN, 2300 S St. N. W., Washington,
 D. C.....1921
 WALCOTT, JUDGE ROBERT, 910 Barrister's Hall, Boston, Mass.....1924
 WALKER, CHARLES FREDERIC, 53 Latta Ave., Columbus, Ohio.....1927
 WALKER, MISS ELIZABETH F. L., 2131 Spruce St., Philadelphia, Pa...1929
 WALKER, ERNEST PILLSBURY, 114 Maple Ave., Takoma Park, Wash-
 ington, D. C.....1918
 WALKER, GEORGE RAYMOND, R. D. 3, Murray, Utah.....1909
 WALKER, ROLAND, Osborn Zool. Lab., Yale Station, New Haven, Conn.1924
 WALKINSHAW, DR. LAWRENCE HARVEY, 1421 W. Michigan Ave.,
 Battle Creek, Mich.....1929
 WALLER, LITTLETON WALLER TAZEWEEL, JR., 5056 du Pont Bldg.,
 Wilmington, Del.....1928
 WALLIS, JOSIAH KENDALL, 132 Holder Hall, Princeton, N. J.....1926
 WALSH, LESTER LEWIS, 15 Walther Ave., Ridgewood, N. J.....1925
 WALTER, DR. HERBERT EUGENE, 67 Oriole Ave., Providence, R. I....1901
 WALTERS, FRANK, 512 Grand Central Palace, New York, N. Y.....1902

WANAMAKER, PAUL, Seminole St., Oradell, N. J.....	1930
WANLESS, JOHN, 243 Yonge St., Toronto 2, Ont., Can.....	1928
WARBURTON, STANTON, JR., 2114 North Prospect St., Tacoma, Wash..	1928
WARD, FRANK HOWLEY, 18 Grove Place, Rochester, N. Y.....	1908
WARD, HENRY LEVI, Kent Scientific Museum, Grand Rapids, Mich...	1906
WARFIELD, BENJAMIN BRECKENRIDGE, 57 Brewster St., Cambridge, Mass.....	1930
WARREN, GEORGE COPP, 253 Kent St., Brookline, Mass.....	1924
WARRINGTON, HENRY, Jackson, Amador Co., Calif.....	1927
WATKINS, ALLAN GODFREY, 111 Forest St., Oberlin, Ohio.....	1929
WATSON, ARTHUR TILLEY, 1301 West 10th St., Des Moines, Iowa....	1929
WATSON, CHARLES GRAY, 201 Ridout St., S., London, Ont., Can....	1919
WATTERSON, WILLIAM HERBERT, 1910 East 87th St., Cleveland, Ohio.	1927
WEBER, ALOIS JOHN, 904 Grand Ave., Keokuk, Iowa.....	1928
WEBER, JAY ANTHONY, 151 Grand Ave., Leonia, N. J.....	1907
WEBER, WALTER ALOIS, 1245 Elmwood Ave., Evanston, Ill.....	1928
WEBSTER, MRS. JENNIE ELLIS BURDICK, 468 4th Ave., New York, N. Y.....	1917
WEDEL, H., c/o Colon Import & Export Co., Colon, Panama.....	1928
WEED, CLARENCE MOORES, State Normal School, Lowell, Mass.....	1924
WEISER, CHARLES SPANGLER, 105 W. Springettsbury Ave., York, Pa.	1916
*WELLING, YENS M., 1828 East 5th St., R. F. D. 1, Anderson, Ind....	1924
*WELLMAN, REV. GORDON BOIT, 17 Midland R'd, Wellesley, Mass....	1908
WELTER, WILFRED AUGUST, 224 Linden Ave., Ithaca, N. Y.....	1930
WENDLE, MRS. JOSEPH, Bowton Lake, Barkerville, B. C., Can.....	1927
WESTON, FRANCIS MARION, U. S. Naval Air Station, Pensacola, Fla...	1925
WETHERBEE, MRS. KENNETH BRACKETT, 11 Dallas St., Worcester, Mass.....	1929
WEYDEMEYER, WINTON, Fortine, Mont.....	1925
WEYGANDT, DR. CORNELIUS, 6635 Wissahickon Ave., Phila., Pa....	1907
WEYL, EDWARD STERN, 6506 Lincoln Drive, Mt. Airy, Phila., Pa....	1921
*WHARTON, WILLIAM PICKMAN, Groton, Mass.....	1907
WHEELER, REV. HARRY EDGAR, Museum Dept., Public Library, Bir- mingham, Ala.....	1923
WHEELER, STAFFORD MANCHESTER, Westport Harbor, Mass.....	1928
WHITAKER, INNESS, 490 West End Ave., New York, N. Y.....	1926
WHITAKER, JAMES DAVIES, 683 Atlantic Ave., Boston, Mass.....	1924
WHITAKER, JAMES L., Cedar Grove, Olney, Philadelphia, Pa.....	1927
WHITE, ALFRED FISHER, 1745 Waverley St., Palo Alto, Calif.....	1926
WHITE, EDWARD FRANCIS GEOFFREY, 185 Wurtemberg St., Ottawa, Can.....	1927
*WHITE, GEO. WHITNEY, Nat. Metropolitan Bank, Washington, D. C.	1924
WHITE, JAMES SAMUEL, 1114 Ardmore Ave., Chicago, Ill.....	1928
WHITE, WILLIAM FOSTER, 50 Broadway, New York, N. Y.....	1923
WHITLEY, HERBERT, Primley, Paignton, S. Devon, England.....	1928
WHITMAN, FRANK BURTON, JR., 103 Tyler St., Wollaston, Mass.....	1930

- WHITNEY, PROF. ALVIN GOODNOW, Asst. Director N. Y. State Mus., Albany, N. Y. 1925
- WHITNEY, HOWARD, 45 East St., Hartford, Conn. 1921
- WHITTAKER, CARTER READE, Am. Consulate, Yokohama, Japan. 1928
- WHITTLE, CHARLES LIVY, River Crossroads, Peterboro, N. H. 1916
- *WHITTLE, MRS. HELEN GRANGER, River Crossroads, Peterboro, N. H. 1904
- WICKS, MRS. JUDSON LANE, 405 Essex Bldg., Minneapolis, Minn. 1922
- WIEGMANN, DR. WILLIAM HENRY, 436 E. 5th St., New York, N. Y. 1916
- *WIGGLESWORTH, DR. EDWARD, Boston Soc. Nat. Hist., Boston, Mass. 1920
- WILBUR, ADDISON PRENTISS, 60 Gibson St., Canandaigua, N. Y. 1895
- WILCOX, LEROY, Speonk, L. I., N. Y. 1927
- WILCOX, THOMAS FERDINAND, 118 E. 54th St., New York, N. Y. 1895
- WILDER, GEORGE DURAND, Route 5, Penn Yan, N. Y. 1929
- WILDMAN, EDWARD EMBREE, 4331 Osage Ave., Philadelphia, Pa. 1923
- WILEY, MISS FARIDA ANNA, Cor. Prospect Ave. & Willow St., Douglaston, L. I., N. Y. 1925
- WILKINSON, ALEXANDER STANLEY, Kapiti Island Bird Sanctuary, Paraparamon P. O., North Island, via Wellington, New Zealand. 1929
- WILLARD, BERTEL BLIDDEN, 51 Fresh Pond Parkway, Cambridge, Mass. 1906
- WILLARD, OSCAR THEODORE, 5343 Blackstone Ave., Chicago, Ill. 1919
- WILLIAMS, ELLISON ADGER, 27 Limehouse St., Charleston, S. C. 1923
- WILLIAMS, LAIDLAW ONDERDONK, 8 Greenholm St., Princeton, N. J. 1919
- WILLIAMS, MERTON YARWOOD, 2376 5th Ave., W., Vancouver, B. C., Canada. 1930
- **WILLIAMS, ROBERT STATHAM, Botanical Gardens, Bronx, New York, N. Y. 1888
- WILLIAMS, ROLAND, 163 Bertling Lane, Winnetka, Ill. 1925
- WILLIAMS, MRS. SYDNEY MESSER, Pond Road, Wellesley 81, Mass. 1928
- WILLIAMSON, EDWARD BRUCE, 419 W. Market St., Bluffton, Ind. 1900
- WILLIS, WARREN JENNISON, 24824 89th Ave., Bellerose, N. Y. 1923
- WILSON, ANDREW, 233 Argyle St., Glasgow, Scotland. 1930
- WILSON, MRS. ETTA SMITH, 9077 Clarendon Ave., Detroit, Mich. 1917
- WILSON, DR. FRANK NORMAN, 804 Lawrence St., Ann Arbor, Mich. 1922
- WILSON, GORDON, 1434 Chestnut St., Bowling Green, Ky. 1919
- WILSON, HAROLD CHARLES, Ephraim, Wis. 1924
- WINECOFF, DR. THOMAS EDWARD, Director Research, State Game Com., Harrisburg, Pa. 1926
- WING, GEORGE STUART, Rt. 3, Jackson, Mich. 1924
- WING, LEONARD W., Cooper Street Road, Route 3, Jackson, Mich. 1929
- WINSON, JOHN WILLIAM, Huntingdon, B. C., Can. 1928
- WISE, JOHN SERGEANT, 73 Westcott Road, Princeton, N. J. 1930
- WITHEY, GEORGE ALEXANDER, L. Box 33, Antler, N. Dak. 1927
- WOLFE, CAPT. LLOYD RAYMOND, Fort Warren, Cheyenne, Wyo. 1922

WOOD, ALLEN HOWLAND, JR., 178 Tremont St., Boston, Mass.....	1923
WOOD, DR. CLIFFORD HARVEY, 656 N. Vista Bonita, Glendora, Calif....	1924
WOOD, DR. HAROLD BACON, 3016 North 2nd St., Harrisburg, Pa.....	1929
WOOD, JAMES HARRY, Mus. Zool., Univ. Michigan, Ann Arbor, Mich..	1929
WOOD, MERRILL, 3016 North 2nd St., Harrisburg, Pa.....	1927
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WOODS, LESLIE, 5907 Greene St., Germantown, Philadelphia, Pa.....	1929
*WOODS, ROBERT S., Box 356, Azusa, Los Angeles Co., Calif.....	1926
WOODWARD, DR. LEMUEL FOX, State St., Worcester, Mass.....	1917
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WOOLMAN, EDWARD, Box 128, Haverford, Pa.....	1925
WOOLSTON, WILLIAM JENKS, W. Chestnut Ave., Chestnut Hill, Phila- delphia, Pa.....	1925
WORCESTER, MRS. ALFRED, 314 Bacon St., Waltham, Mass.....	1905
WORKMAN, WILLIAM HUGHES, Lismore, Windsor Ave., Belfast, Ireland	1928
WORTH, C[HARLES] BROOKE, St. David's Ave., St. Davids, Pa.....	1927
WRIGHT, FRANK SMITH, 14 Cayuga St., Auburn, N. Y.....	1917
*WRIGHT, GEORGE MELENDEZ, 405 Am. Trust Bldg., Berkeley, Calif....	1927
WUNDERLE, HORACE GODFREY, JR., Rydal, Pa.....	1930
WYLDE, DR. HILDEGARDE HOWARD, Los Angeles Museum, Exposition Park, Los Angeles, Calif.....	1928
WYNNE-EDWARDS, PROF. VERO COPNER, McGill Univ., Montreal, Can.....	1930
WYTHE, MISS MARGARET WILHELMINA, Mus. Vert. Zool., Univ. Calif., Berkeley, Calif.....	1924
*YAMASHINA, MARQUIS YOSHIMARO, 49 Nanpeidai, Shibuya-machi, near Tokyo, Japan.....	1927
YEATLER, RALPH EMERSON, Colon, Mich.....	1926
YODER, WILLIAM HENRY, JR., 4510 N. Carlisle St., Philadelphia, Pa...	1923
YOUNG, REV. CHARLES JOHN, 828 Courtney St., Victoria, B. C., Can..	1918
YOUNG, FREDERICK CARYL, Box 201, Palmyra, N. J.....	1927
YOUNG, JOHN PAUL, Ithaca, N. Y.....	1911
YOUNG, WALLACE PARK, 36 Ridout St., Toronto, Ont., Can.....	1925
YOUNGORTH, WILLIAM, 3119 East Second Street, Sioux City, Iowa...	1930
ZAMBRA, COMM. RAG. VITTORIO, Corso Umberto I, 49, Rome, Italy...	1928
ZELENY, LAWRENCE, 613 East River Road, Minneapolis, Minn.....	1924
ZERLANG, LAWRENCE, 524 W. Hawthorne St., Eureka, Calif.....	1925
ZIMMERMAN, HAROLD ALEXANDER, 109 Rector Apts., Muncie, Ind....	1929



THE AUK

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THE AUK (LOCATION OF SETS)—Auk, '19, 634; '20, 348; '24, 207; '29, 584.

THE AUK IN PUBLIC LIBRARIES—Auk, '30, 609.

BIOGRAPHIES OF DECEASED MEMBERS—Auk, '30, lxvi.

BREWSTER MEDAL—Auk, '20, 29; '22, 86; '24, 125; '25, 484; '26, 69; '28, 71; '30, 219.

BY-LAWS: Auk, '27, xi.

DATES OF PUBLICATION OF THE AUK (1912-1930) follow the Index in each volume.

HISTORY OF THE UNION: Allen, J. A., 'A Seven Years' Retrospect,' 1891; 'The A. O. U.,' Bird-Lore, 1899, 143.

Palmer, T. S., 'The A. O. U.,' Am. Mus. Journal '18, 473; 'Looking Backward,' Auk, '24, 139.

MEETINGS: Auk, '24, 143; '30, back cover of October number.

MEMBERSHIP:—Auk, '24, 140; Fellows, '18, 110; Foreign Members, '18, 266; Members, '18, 384; Associates, '18, 513.

PERMANENT FUNDS: Auk, '20, 513.